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NEW COMPUTER EXPRESS

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Where can you get an ST emulator for free? **PLUS**... Raytracing for only £30

ATARI
Beware the TOS that kills! **PLUS**...The ST pocket link

PC
386SX sales are all set to double – will prices tumble?

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The amazing Midnight Tracer

PLUS

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A HAPPY NEW YEAR?

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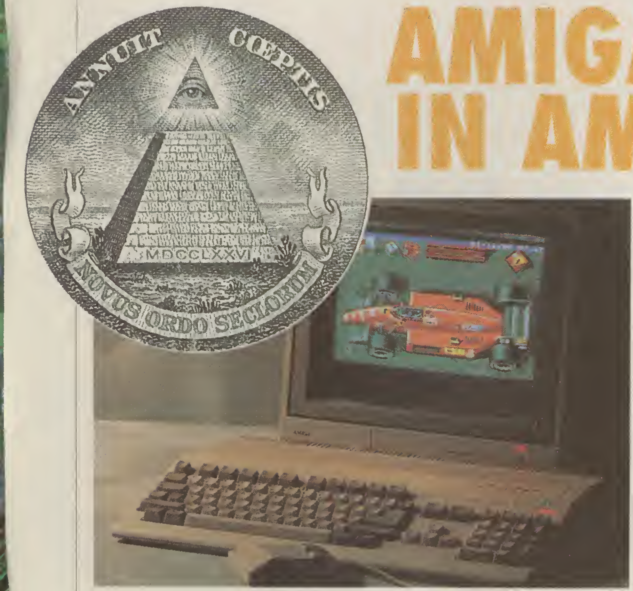
frontend

edited by Colin Campbell

AMIGA MAD IN AMERICA



After years of techie obscurity in the US, the Amiga is at last emerging as a force to be reckoned with in the world's most competitive market.

Commodore claims that its Amiga, currently enjoying massive success in Europe, is also a big hit among affluent young Americans. One million Amigas were sold worldwide last year, nearly half were snapped up by American buyers.

Computer fans in the US are getting tired of dedicated games machines and are looking for something more challenging. Commodore says it is a "reaction" to the enormous popularity of Nintendo games consoles in the late 1980s.

Commodore International president Harry Cooperman has transformed the perception of the Amiga, from a solely professional machine, to a multi-purpose computer. Unlike in Britain, Commodore US had played down the machine's games capabilities.

Now Cooperman, an ex-Apple employee, is selling the Amiga with free games at $495. He says shortages of the Mac Classic has helped people turn to the Amiga.

In the UK, Commodore's spokesman Andrew Ball commented: "The American market has really picked up, they seem to have got it right at last. The Amiga has also established itself as the software development platform over there."

Also, the runaway success of Commodore US's small business bundle the A500-P (*Express* 97) could mean a similar package arriving here within the next few months . ■

HALIFAX
CARDCASH

Halifax beats data cheating charge

The Data Registrar, which is responsible for proper use of personal information held on official or corporate computers, suffered a serious set-back last week as it lost its most important case yet.

The UK's largest building society, the Halifax, was found not guilty of using unregistered computer data at Leeds Crown Court.

The 1984 Data Protection Act requires that organisations must justify using people's personal details on computer databases.

Registrar Eric Howe had acted on a complaint brought about by a Halifax customer. But the Halifax said it was using the information to help prevent fraud, and that it had not knowingly flouted the law.

In the end, the judge awarded the Halifax costs of £50,000 and complained that the case had been "nonsense". Halifax operations director Mike Whitehouse commented: "We have been completely vindicated by the judge's decision that we did not knowingly use personal information in breach of the Act." He called the case "a sad waste of time."

Eric Howe restricted himself to an official statement: "I will consider the implications of this case with my legal advisers before making any decision as to future action." ■

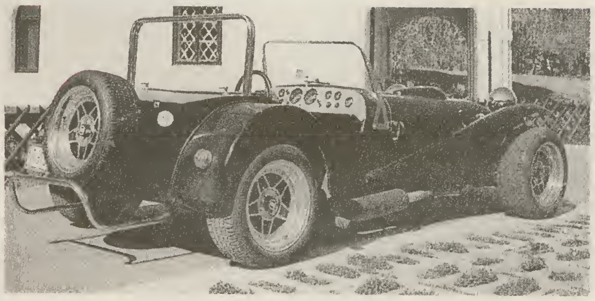
Magic carpets and big swords

These days Persia is famous for brutal dictators and hideous weapons. But there was a romantic time when the name conjured up images of flying carpets, weird magicians, pretty girls and, er, brutal dictators.

So it is with Domark's latest offering *Prince of Persia*. It's set in the classic *East of Hollywood* fame. You get to take the Douglas Fairbanks role and fight burly guards in an attempt to rescue a young lovely from the "evil and sexually deviant Grand Vizier".

***Prince of Persia* isn't just another action game. There are plenty of puzzles and challenges to test your heroism. Domark reckons the animation is "uncannily realistic", it seems the programmer sat through scores of old Sinbad movies to get a feel for his subject. *Prince of Persia* is out on the ST, Amiga and PC for between £25 and £30.** ■

Mine's a half o' Lada



It's amazing what a computer can do for you – take Yugoslav car nut, Milan Rajic. He didn't like the look of his 1981 Lada 1500 so he used the office computer to redesign it as a whizzy open two seat sports car.

The sporty new car bears more than a passing resemblance to a British Lotus Seven and is made from parts of his Lada, an MZ motorbike and a few pounds of glass fibre.

The sophisticated design calculations of the tubular steel chassis were done on a Compaq 386 running top American computer aided design program *ANSY44*.

Despite the high-tech help Rajic says his machine is far from perfect. "The Lada suspension's a bit hard but that helps the handling", said Rajic, as he cut a dash through the potholed streets of Novi Sad. ■

BAG A BARGAIN DISK BOX

SAINSBURY'S
ASSAM BLEND
TEA BAGS

The pragmatic among us appreciate a good way of saving money, while making computing ever more convenient. That's why we thought it would be just dandy to pass on a nifty tip from smart reader Philip Bishop of Stowemarket, Suffolk.

Get this: Sainsbury's is apparently selling sturdy boxes filled with Assam tea bags. Once you've put the bags into your shiny tin marked 'TEA' you're left with an empty wooden box which will store 20 3.5-inch disks perfectly.

You might think this a tacky example of *Blue Peter* mentality, but bear in mind that disk boxes cost up to £20; you can buy Sainsbury's pack of Assam tea bags for £1.65. ■

Electronic arteries

Bored of gaming? Tired of computer accounts and DTP? Maybe it's time to put your computer to better use, by popping in a program designed to keep a check on your health.

A new PC and Mac package has been launched which will help you keep tabs on your cholesterol level, and will plan healthy meals for you and your family. It's pretty much agreed that too much cholesterol intake can cause a heart attack.

***Take Control of Cholesterol* is an interactive version of best-selling American book *Eaters Choice*. You simply need to answer a few multiple choice questions on your age, sex, weight and activity level. This information is used to determine your ideal saturated fat intake. The program then helps you plan healthy menus from the two hundred stored recipes.**

The two-disk pack costs £29.95 from MGA SoftCat on 0797 226601. ■

VIRGIN TRIPS UP

Virgin's latest adventure, *Wonderland*, has been infected with the so-called 'stoned' virus.

The company has confirmed that a batch of 5.25-inch PC disks are carrying the boot sector virus. A diseased disk will infect your PC if it is left in the boot drive when the computer is switched on or reset.

Virgin has reacted quickly and is looking at the possibility of the virus being placed by a prankster. *Wonderland* is based on Lewis Carroll's trippy novel *Alice in Wonderland*, and Virgin accepts that the druggy overtones could have prompted an attack.

If your PC is infected with the 'stoned' virus, you will be treated to a picture of a cannabis leaf and the message "Your computer is stoned, legalise marijuana."

Virgin says anyone who sends back an infected game will be sent a replacement as well as a '*Wonderland* virus kit' featuring anti-virus programs.

Product manager David Bishop told *Express*: "It's not a destructive or malevolent virus and can only really be caught in extremely unfortunate circumstances." He said that the master disks had been clean when they left Virgin's offices for duplication but added "we're not pointing the finger at anyone".

Virgin can be contacted on 071-727 8070. Check out more virus news on page 8. ■

Atari gets surfin'

James Grunke, the technical man responsible for engineering the Beach Boys' amazing sound has joined Atari as 'music industry representative' and MIDI promoter.

Grunke, who is something of a high-tech surf-sound culture hero, will be promoting the ST in the music biz. Atari, based in sunny California, places great stock in the ST's MIDI capabilities. The firm feels that Grunke's legendary musical ear will lend the company heavy credibility among musos. ■

ROBOCOP 3 PLANNED

Following the enormous success of both *Robocop I* and *Robocop II*, Ocean is planning a third game based on the movie cop of the future.

Robocop III will be launched in the autumn and will be based on a movie of the same name. Ocean has only just begun the programming process and is understandably reluctant to give out any details.

The first *Robocop* game was a smash hit, and was even converted into an arcade machine. Once again Ocean will be sticking closely to the movie plot for game ideas – *Robocop III* the movie will be considerably less frenetic and violent than its predecessors. ■

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THE FUTURE IS I

What can we expect from our major manufacturers and from our most important machines over the next twelve months? *Express*, columnists and all, reaches for the crystal ball...

Main report by Colin Campbell

As the man said, whoever controls the past, controls the future. For better or for worse, come Christmas 1991 we'll still be at the mercy of the same people.

Amstrad, IBM, Atari, Commodore, Sega, Apple, Nintendo – none of them are going to disappear. It would take a brave person indeed to predict a sudden and nasty demise for any of these monster companies. Hopes of some brave entrepreneur riding in to shake up our cosy corporations seems, at best, desperately optimistic.

What is certain is that in their insatiable desire to outdo each other, we can expect some tremendous treats from the big boys. And in the great tradition of market development, we're also going to be presented with a few outstandingly pointless products.

Last year IBM came up with the dreadful PS/1, complemented by a deliciously pompous advertising campaign. Apple actually managed to launch a good Macintosh system for the masses, now all the company has to do is dream up a sufficiently well organised distribution system so that the likes of you and me can easily buy the thing.

Most in the trade agree that Apple will open up its distribution network, and that you will be able to buy the Classic on the High Street from independent dealers and, just possibly, at discount prices through mail order outfits.

When this happens the Macintosh will at last establish itself as the perfect small business computer.

Paradoxically, IBM will wake up to the fact that it has once again failed to sweep the computer-buying world off its feet. Given that this company moves at roughly the same pace as a sleeping terrapin, we're not likely to see a 'we've learned from our mistakes' version of the PS/1 for a good two years.

Amstrad has had plenty of opportunity to learn from its mistakes and these days it can be found launching good products at what Mr Sugar enjoys calling "keen prices". Even so, it must irk Sugar and his chums that bumbling Commodore and paranoid Atari have managed to clean up on the swish home computer front. The ST and Amiga are already streets ahead of anything anybody could launch.

When Amstrad does launch a low-cost VGA-based PC which can plausibly be described as a games machine, a dent will quickly appear in the 16-bit duopoly. Fingers crossed, the so called PC4000 will be with us by autumn.

• *1991 looks set to be a good year for the Amiga.*

GHOSTLY SPECTRUM

Amstrad has already done a decent job in resurrecting the ailing CPC range. The two Plus computers aren't cheap, but they are good honest home computers. The question is, what will happen to the beloved Speccy?

Totally unsubstantiated rumour has it that this machine's days are numbered. Yes, it did sell well at Christmas, but Amstrad can't help feeling that the kind of people who bought the Speccy in December 1990, can just as easily be persuaded to buy the sexy CPC in December 1991.

Spectrum owners need not start wailing and screeching just yet. The Spectrum has phenomenal momentum due to a huge rolling software and user base. This grand old workhorse won't die; it'll just retire. Owners can look forward to continuing software output, but the days when programmers could claim to be stretching the hardware are long gone.

Hardware manufacturing is a gamble, naturally Amstrad is holding a wild card. The PCW may be as synonymous with dullness as *Coronation Street's* 'Cardboard Ken', but it keeps a lot of people very happy; people who wouldn't normally touch a computer. Nevertheless, as time goes by the PCW becomes ever more boring – even making fun of it has become just a wee bit tiresome.

Amstrad watchers have long been predicting a relaunch featuring 3.5-inch disks, instead of the cruddy 3-inch standard, a better screen and a sexier box.

A PCW Plus is one of those logical launches that desperate journalists will justify as bona fide fact given little more than half a chance and an impending news deadline. It's just too logical, too sensible and too irresistible for Amstrad to overlook. In 1991 the PCW will be reborn, and if it isn't we'll want to know why.

Oh, and if you hadn't guessed already, Amstrad will launch another "generation" of top-end PCs aimed at corporate customers. These will be called the PC5000 range, one of their number will be a 486, and they'll all be received with quiet approval by press and buyers.

Commodore also has a stand in the PC market, albeit a particularly wobbly one. Despite the ludicrous claim to being "the second biggest computer manufacturer in the world" CBM has still to make any impression when it comes to IBM compatibles. (The ridiculous claim is based on sales of the C64, and is designed to impress the kind of people who only ever buy IBM anyway).

Commodore will launch yet another range of mediocre PCs, will announce yet another "re-appraisal" of its approach to the market, and will continue to stave off rumours that it is going to pull out of the PC sector all together.

AMIGA GLORY

In the Amiga, Commodore is blessed with a golden computer, adored by millions and coveted by millions more. This year Commodore will make dainty adjustments here, tiny improvements there, always careful not to taint the precious bloom. Commodore will not blunder into the console sector waving an Amiga based games machine, nor will it suddenly whip £100 off the price of the A500 in an attempt to annoy Atari.

The best we can hope for is that

Atari on form

1991 is likely to be make or break year for Atari, which has suffered badly over the last 18 months, partly at the expense of the remarkable run of success enjoyed by a buoyant Commodore, but partly also due to its own stupidity and incompetence.

Its sheer ineptitude in cocking up the launches of the STE and the Stacy have done nothing to enhance either its reputation or its bank balance.

But I am convinced there are signs that the company has recognised its problems – in itself an important step – and is trying to do something about it. My guess is that Atari will begin to play to its own strengths, chiefly in the music department. Its built-in MIDI gives it a massive advantage over the Amiga in this area, leading to its general adoption as the professional musician's choice.

Atari will also be concentrating on developing a better relationship with its customers, perhaps by setting up some kind of dealer network or concentrating on getting STs into schools.

This has not been a good year for the company, whatever their publicity machine may be saying. But 1991 will see the tide beginning to turn.

Steve Carey

A Classic year

1990 was the most important year for Apple since the original Macintosh was launched in 1984. But 1991 won't be so exciting; we'll have to wait until 1992 (or very late 1991) for a 68040 or RISC-based Mac.

The Mac Portable will be re-vamped, with a backlit screen. And there may well be a version based on the cheaper, lighter Outbound Portable. But the present rumours of a colour Portable are likely to be unfounded.

There will be new, cheap printers in the first half of the year, to tie in with the launch of System 7 – which will finally appear around May.

And the future for Apple itself? Well, by the end of 1991 we may just be referring to it as a division of the Sony Corporation.

Ian Wrigley

Second wind for Amstrad

Amstrad's recent revamp of the CPC range has done much to revive media interest in the six-year-old machine.

The complete restyling job and provision of console hardware facilities has impressed everyone in the industry, but whether the machine will catch on with the public remains to be seen. Early reports suggest disappointing sales, but this is in a bleak financial climate for the 'man in the street'. It will be several months before the effectiveness of Amstrad's promotional push becomes apparent, maybe longer, but providing the company continues to promote the machine hard, and co-operate with the software publishers and the press, the console looks set to be a winner.

Rod Lawton

CDTV optimism

With sales riding high, 1990 was undoubtedly the year of the Amiga 500, but expect 1991 to be the year of the CDTV.

With its eventual release, owners of the more conventional Amigas can also expect Commodore to make CDTV-compatible ROM drives available in both external and internal formats.

Workbench 2.0 should finally be made available to those users who are lucky enough to own a machine that can handle it.

Although Commodore has no plans to provide an upgrade path for current A500s, the A500 Professional (*Express* 97) will almost certainly arrive early in 1991, as will the new repositioned model B2000 with hard disk and Workbench 2.0 fitted as standard.

Jason Holborn

RRESISTIBLE

Genesis
YOUR CHILD AND THE NATIONAL CURRICULUM

• *Archimedes – little movement.*

Commodore will do the decent thing and chuck an extra half a meg in the machine with no price penalty.

If not, it won't matter anyway because 1991 will be another great year for the Amiga. The software will get better, the user base will get bigger, and anyone operating in the Amiga market will get considerably fatter. Amiga owners will be offered ever better software, ever more ingenious gadgets for desktop publishing, video editing, music and graphics, and ever more brilliant games.

The Amiga based CDTV is another case entirely. Anyone can predict that CDs will play a massively important role this year, but Commodore has had too many delays and fudged too many issues to generate much excitement. Already people are whispering horrid things along the lines of "mark my words it'll never arrive". For us to state this as fact would be absurd, but it is obvious to all that Commodore needs to get its finger out.

This could also apply to the forlorn C64 GS (Games System). It is an ugly little machine which suffered a lonely Christmas. If Commodore has any sense it will ship this runt off to some foreign land (Russia might be a good start, or perhaps Mexico) where it might serve some purpose.

Amstrad's similar CPC console hasn't done much better, but at least it looks as if Amstrad tried. That machine, and the C64GS will not cost £99 come Christmas 1991 – try £69.

The trouble is, kids don't want these tawdry efforts. If they're not baying after an Amiga, they're chanting 'Megadrive, Megadrive – Arcade Graphics' in an adoring trance.

Sega's Megadrive has no equal, and will therefore flourish. If the user base can reach 100,000 three months after launch, you've got to be looking at 250,000 within 12 months.

Curiously, this is what the long-awaited console boom has amounted to – one genuinely good machine catching on in a reasonably big way. Nintendo is hanging around but the word on the street is that sales have been pretty trivial in this country (the Turtles package was a sell out, but that doesn't really count).

If the CPC and C64GS games consoles were launched to make life difficult for Nintendo, then the strategy appears to have succeeded. But the side effect has been to make the ride smoother for the Megadrive.

Sega will also launch its colour handheld at Easter and will be up against Atari's Lynx in a colour hand-helds wrestling match. One can't help feeling that hand-held gaming is a bit of a fad, it seems that the Nintendo Gameboy – dismal graphics and all – has swept the carpet from under Sega and Atari.

Gameboys will be on every train journey by the middle of the year, that hideous bleep will be heard in every classroom and on every Western passenger airliner. Colour hand-helds are just a jot too fancy and just a mite too expensive to really count.

If Nintendo can't force the TV system on us, it will make sure we end up with that perplexed and intense facial expression all handheld gamers achieve.

By the end of the year Atari may have managed to launch Lynx 2, which will boast fine graphics and will fit into the pocket. This rather depends on Atari's ability to admit that the original is, as one competitor put it, "unwieldy".

COCKY ATARI

Atari will gain a good deal more satisfaction looking forward than looking back, at least on a 'corporate profile' level. As far as the ST went, 1990 was a year dogged with silly mistakes and bad press coverage.

There was the STE fiasco with its incompatibility problems, Atari's usually formidable publicity machine went haywire and instead of the cocky, arrogant Atari of old, we were presented with a company that could foul things up as well as any of its counterparts. Atari's attempts to heap the blame elsewhere (programmers and the press came under attack) merely exacerbated the situation.

Under a severe dose of Amigamania though, the ST performed exceptionally well in the High Street. Cynical expectations of a nasty case of slippage proved unfounded as the machine held its own.

ST software producers are still conjuring up some marvellous creations, mainly in the serious arts of music and small business productivity. The games are still coming but, increasingly, the ST is hanging onto the shirt tails of the Amiga.

Still, the new 16Mhz Mega STE is a classical piece of logic and common sense over corporate humbug. It's fast, attractive and cheap. If this is Atari's new approach, then we and the company can look forward to happier days.

TECHIE TURNS

People enjoy putting things in neat boxes, and a powerful image is bound to show itself of the ST as techie machine supremo and the Amiga as numero uno games and graphics computer. This has less to do with the respective machines' capabilities and more to do with the kind of people who are shelling out for them in the low-cost arena.

The ST and Amiga will increasingly be viewed not as two computers in direct competition, but as two entirely different machines. Maybe we're finally getting to know the beasts.

One animal which remains enigmatic is the Archimedes. *The Guardian* recently described Acorn as "a small Italian-owned computer manufacturer", a label as cruel as it is true.

Despite the Olivetti connection Acorn is still very British in its stolid refusal to do anything imaginative.

This year it will continue to fiddle faddle around with incomprehensible techie deals involving the ARM 3 chip. What it won't do is drop the price of the A3000, nor will it launch anything affordable based on this superb technology. Nor will we see any glut of games for the Archimedes, just more educational stuff to be pumped into our poor schools.

If there is any activity it will be with an Archimedes portable; you can be sure that this machine will be impossibly expensive and will sell only a few units.

Another machine unlikely to worry the big boys is Steve Jobs' magnificent NeXT. This will slip down in price throughout the year, stalking the establishment, edging closer and closer.

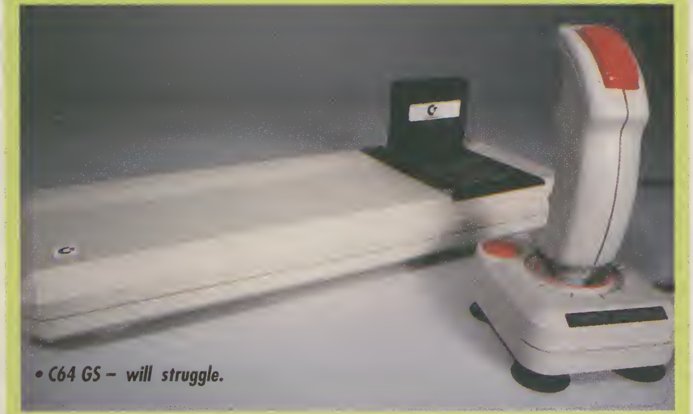
For the NeXT, 1991 will be a year of preparation. Its time will come later. When it does, our happily ignorant manufacturers had better be ready. ▩

A year for Windows

Even more than last year, 1991 will be the year of Windows. A multimedia program, perhaps *ToolBook*, will really take off and utilities like Adobe *Type Manager* will bring the interface up to Macintosh standards.

On the hardware front XGA will confirm VGA as the entry level system, with enhanced graphics being increasingly common. The 386SX will be pushed to 25MHz and the price of 486s will fall, virtually killing off the 32-bit 386 chip. IBM will push the SCSI interface, slicing the price of CD-ROM drives and large hard disks. The 2.88Mb disk will be accepted as a new standard. ***Stuart Anderton***

C64 GS Console



• *C64 GS – will struggle.*

Sales of the C64 GS over Christmas will have little or no effect on the initial success of games released on ROM this year. The market for the stuff exists already.

However, this is under pressure. Games producers may find that ROM based back catalogue compilations of veteran material are received best at this economic level.

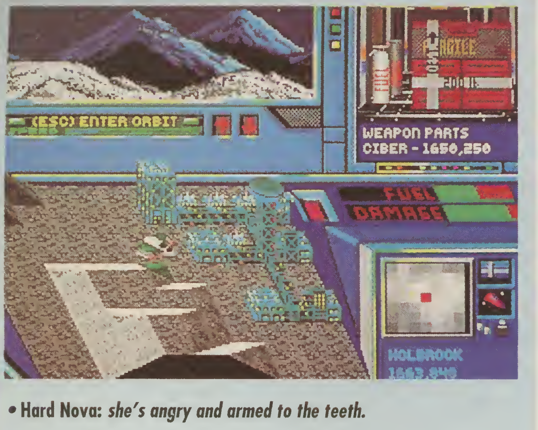
Attempts to convert some 16-bit material such as *Shadow of the Beast*, or games previously unsuccessful because they were hampered by multi-loads like *Fiendish Freddy's Big Top O' Fun* provides opportunity to introduce affordable quality titles. Risks? Brave experiments which go wrong will not be supported. ***Sean Masterson***

Spectrum – far from finished

The Spectrum didn't have a good 1990 and I don't think the new year will be all that happy for an eight-year-old machine that's increasingly feeling its age. Amstrad's unceremonious dumping of the Plus 3 makes the Plus 2's position dodgy especially as 8-bit rivals the C64 and CPC are looking sexier and more value packed than ever.

So our best hope seems to lie with the SAM Coupé which has lots of enthusiastic supporters, if little software, at the moment. Let's hope it goes from strength to strength without too many delays in between and becomes the obvious Speccy upgrade.

Let's not forget the intriguing saga of the charmingly named Soviet Speccy – The Hobbit. It would be great to see that in Britain and if the price was right Amstrad might find they have a battle for the budget home computer market on their hands. The Speccy might be fraying around the edges a little but it's far from finished. Eight more years! ***Robin Alway***



• **Hard Nova:** *she's angry and armed to the teeth.*

Hard, but unfair

What ever you got for Christmas you can bet it wasn't sophisticated offensive and defensive weaponry. Nor did you go for a quick session of assassination, kidnapping, smuggling and gun running instead of a brisk walk on Boxing Day. You could have done all of this, had you been playing *Hard Nova*, a new game from Electronic Arts.

You get to play a freelance interstellar mercenary whizzing about the Four Systems. Working for the Starkiller Mercenary Group you are tied to no particular ethics other than the law of the turbo-laser cannon blaster death ray grenade bazooka.

The game includes exploration of the Four Systems, three combat systems – space, air and ground, real time computer conversations and a full colour galactic map.

The game is available on the PC and is priced at £24.99. For more information call 0753 49442. ■

Speccy sounds step up

***Reference Edition* and *Muso's Edition* are two new music packages for the ZX Spectrum. They replace the soon to be scrapped, *Music Writer*.**

Reference Edition is similar to *Music Writer* with the addition of Utility XTN. *Muso Edition*, is one step up and includes an icon glossary booklet instead of a manual. It is aimed at those users who are already familiar with music notation. If you want to get hold of the manual it will cost you an additional £10.

Reference is priced £25 and *Muso* will cost you £15. If you want *Music Writer* before it becomes a collectors' item buy it before January 31.

For more information contact G Rowland, PO Box 49, Dagenham, Essex RM9 5NY. ■

Commodore TV special

Bores who enjoy spotting computers on television would have had a wonderful time on Christmas Day.

Commodore is boasting that its kit managed to make three appearance on the one day. We had a Commodore PC on that fantastically interesting detective show *Bergerac*, and there was an Amiga given away to some lucky young thing on Noel Edmonds' memorable Christmas special.

Most spectacular of all was the appearance of a C64 games console on Bruce Forsyth's *The Generation Game*. Naturally, Bruce was giving the thing away...■

• *Bruce: spotted with C64 console shock*

Ultimate in hand-held computing set for autumn l

ATARI PLANS POCKET POR

Atari is planning to launch a 386 based version of its handheld computer, the Portfolio, later this year.

When released, the machine will be the most powerful pocket computer available. A sub £500 price tag has been mooted, but with the original Portfolio retailing at £199, Atari's new machine is bound to be a strictly top-end purchase.

Research and development company DIP, which originally invented the pocket PC, has already built at least half a dozen prototypes based on the Portfolio. However, it's up to Atari to pick and choose which machines it thinks will be viable.

Atari suspects that 1991 will be a difficult year for desktop PCs, and believes its main activity will be with the ST (another year-on-year growth of 30 per cent is predicted), the hand-held Lynx, and the Portfolio.

Apart from the powerful processor the 386 Portfolio will feature an improved and bigger screen, and a full Megabyte of RAM. The £199 Portfolio comes with 128K of RAM.

The 386 model will be pitched as a computer to complement desktop machines, while the smaller and slower machine is increasingly being seen as a simple electronic organiser.

Atari spokesman Peter Walker confirmed that 1991 will be a year of activity for the Portfolio, but would not be drawn on the possibility of a 386 machine.

"It very much depends on demand," he said. "At the moment we're concentrating on developing a large software base." Up to 30 new RAM cards are expected to be announced within the next week including utilities, business software and some basic games.

At DIP, joint founder and director Peter Baldwin said: "We're having our record month, things are going very well. We've done all sorts of projects with the Portfolio, but it's really up to Atari." He said the company would not bother with "something so trivial" as a 286 machine.

The 386 is the final choice from a catalogue of Portfolio machines. In February 1989 Atari UK boss Bob Gleadow predicted that at least five machines based on the Portfolio would be launched. Most of these have now been put on ice in favour of both the basic machine and the forthcoming 386.

In the past Atari has followed a policy of prematurely announcing products in order to gauge reaction. One can only presume that reaction to the line-up of A4 sized Portfolios was not favourable.

Catch up on Amiga news

A newsletter called *Amiga Professional News* has been launched by Welsh-based White Horse Technical Services.

The monthly title targets a worldwide audience of Amiga users who wish to turn the potential of their machines toward more constructive uses than alien blasting.

The launch issue includes developing applications for the keenly awaited CDTV, a review of the *Pagestream 2* desktop publishing system, and a guide to upgrading mass storage systems. There is already a cross-publishing deal with the Multimedia Computing Corporation of Santa Clara, USA.

Other titles published by the firm include *CD-Rom News*, and another new launch, *The Ultima Report* which is aimed at general high-technology interest.

Price for *Amiga Professional News* is £59 per annum. For more information call 0269 871 300. ■

VIRTUALITY

• *Virtuality: state of the art at the London Virtual Reality conference*

Virtual Reality show planned for London

The world's second public conference dedicated to the emerging field of Virtual Reality, is to be held in London this June. The announcement was made at the recent VR Show in San Francisco, which attracted all that's Virtual.

Visitors will be treated to the British Virtuality system which is causing such a stir and there will be a chance to try out VPL/ Nintendo's Powerglove, which has clocked up sales of $15 million in its first year.

Private Eye, the head-mounted LED display system for the PC will also be on show. The $795 kit allows users to see data as they move around.

If trying out all this amazing technology isn't enough there will also be a number of speakers – mostly from America – who will attempt to "define Virtual Reality".

The London show will be held at the Cavendish Conference Centre on June 5th. For more information call 071-931 9985. ■

tumn launch

NS 386 RTFOLIO

● Meanwhile, American company Artisan has launched a $25 software package that allows files to be moved betwen the ST environment TOS, and the Portfolio environment.

Called Transport, the package supports colour or monochrome and offers two levels of interaction – ASCII and data. The ASCII version allows data to be ported to the Portfolio without the need for special software, while the data module allows 8-bit files to be transferred using the X-modem file transfer protocol.

Earlier this year Atari Inc boss Sam Tramiel said that an ST based Portfolio would be launched. However, this appears to have been scrapped, or at least delayed.

You can contact Artisan at PO Box 849, Manteca, California CA 95336, United States. ▨

• Portfolio: 386 power in your pocket.

• Sharp images: laser proof

Sharp's latest laser

Sharp has launched a small footprint laser printer for under £2,000.

The JX-9500PS Adobe Postscript printer features 35 scalable fonts ranging from ultra-fine four point to massive 720 point. The laser offers the standard 300 dots per inch and prints at six pages per minute.

It comes with 1.5 Mb which is expandable to 4.5 Mb for advanced DTP and networking. The JX-9500 retails at £1,950. ■

Workers get protection

San Francisco's council has passed new laws designed to protect people who work with computers from unnecessary strain.

The regulations are supposed to reduce eye strain and damage to hands and arms brought about by extended use of keyboards and monitors.

Employers will have to provide their staff with appropriate adjustable furniture and screen guards. And employees will have a 15-minute break from their computers every two hours. A daily fine of £250 will be fired at those who break the new laws.

A similar law will probably follow in the UK although, despite continuing union pressure, changes are a long way off. ▨

Amstrad victory

After threatening to pull all of Amstrad's manufacturing interests out of the UK (see *Express* 106), Alan Sugar has received assurances from European Community officials that proposed 'reverse engineering' laws will not be used in anti-piracy legislation.

In a statement to the Amstrad's AGM, company lawyer David Hyams said that EC officials had verbally rejected recommendations from the Department of Trade and Industry (DTI) to ban reverse engineering.

Reverse engineering has been an standard industry method of research and development for many years. It enables manufacturers to dissect existing software in order to create compatible products.

The (DTI) had recommended to the European Parliament that reverse engineering be banned as it was seen as an open door to pirates. While this had the backing a multi-nationals such as IBM and DEC, many European and Japanese backed companies including Apricot and Amstrad raised objections. ▨

Microfair man dies suddenly

Mike Johnston, the man who created the idea of a British computer shopping show, has died of a heart attack.

Johnston, who was 47, was well known in computing circles for successfully organising a string of 'ZX Microfairs' in the 1980s. The idea was to give people a chance to buy Speccy kit at rock-bottom prices. The ZX Microfair was Britain's biggest box shifting event until the launch of the all-formats *Computer Shopper Show.*

He was a civil servant with the Department of the Environment and worked the shows in his spare time. He died on Monday December 17th. ▨

PCW expert on PC

***WiseOne* will be a familiar name to many PCW users as an expert system which has been running successfully on that range of machines for some years. It has now made the switch over to the PC.**

The system makes use of any text editor which can save text in ASCII form. The user creates 'rules' from which the expert 'learns' to deal with problems which are later put to it.

WiseOne is a modular system comprising the Knowledge Builder and Consultant sections. The first of these uses a specialised language as well as straight text entry. The second acts as the adviser.

In operation, once the ground rules have been applied using the Knowledge, the Consultant asks questions of the user. Throughout the consultation, the software also provides advice.

Price is £39.95. For more information call 0420-63793. ▨

Open Access III
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• Open Access: ***single and network.***

Open applications

Four new application modules have been added to the *Open Access III* system for PCs. These will be released with a single user version of *Open Access III* which until now has only be available in networked form.

The modules are a spreadsheet (£195) database (£295), database word processor (£345) and a database programmer (£395).

The single user package costs £495. While the networked version will set you back £695.

For more information call 0734 844081. ■

Guide wins micro badge

Kerry Stevens, aged 12, has become the first Girl Guide in the country to win a computer literacy badge.

The award had been in place and ready to be worked for and won for a full year before any girl plucked up the courage to come forward and secure the prized patch.

In order to gain the honour, Kerry, of Woodford Bridge, London, set out to produce some software for a home computer and successfully managed to write her own program on her elder brother's Amiga.

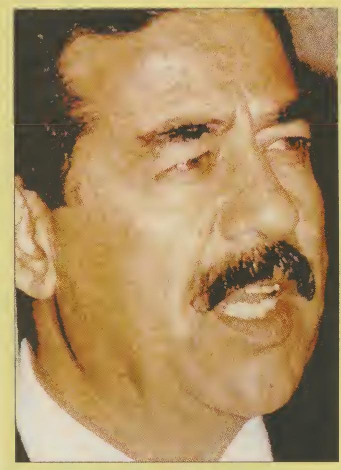
She had become interested in gaming so her brother Andy taught her the fundamentals of computing as well as how to use the BASIC programming language.

Kerry's mum Lynne said: "She sits in front of the computer most of the time at home. Unfortunately, this means that she now wants a computer of her own." ▨

Hypercard Mac finder

MacProductFinder is a new piece of Hypercard software which lists all available products for Apple Macintosh computers in the UK.

It is a *HyperCard*-based system which will be included with every new Mac to hit the streets. Containing information on 1,600 products, dealer and distribution details the software comes on floppy disk and is updated monthly. Contact Informac on 071-721 7197. ▨



Saddam virus declares war on PCs

A new virus which operates under the name Saddam has been discovered attacking PCs.

It first attracted attention in September when it was spotted in Israel. *The UK Virus Bulletin* reported that Saddam is related to the Stupid/Do Nothing virus. Not only does Saddam extend file lengths by 917 to 927 bytes it also displays the message: "Hey Saddam, leave Kuwait before I come".

It is not a well-written virus – it lives in unlabelled areas of memory which means that large programs will over-write it with code. The other danger relating to Saddam is that it is a boot sector virus and hence cannot be detected by most anti-virus programs.

• Saddam: virus linked to Iraqi leader.

On top of all this Gulf crisis politicking, the US army has also suffered a massive dose of digital diseasing. Some 5,000 GI PCs were infected with viruses over the last three months.

According to army spokesmen, the viruses cropped up due to buying cheap local software in Saudi Arabia. It is also known that 4,800 PCs have been infected with the Jerusalem B virus which sprang into action from an infected games disk.

If all of this wasn't enough to send everyone rushing for virus protection devices, another new infection was spotted running in the USA and London. The Beijing virus, so called because it contains a message relating to the massacre of Chinese students in Tiananmen Square, has struck again. It displays the message "Bloody! June 4, 1989".

It is thought that Beijing virus was designed as merely a carrier for that message. However, due either to a bug or a mutation, the virus is now capable of wiping disks on MS-DOS based machines. ▨

Parents to be targetted by new educational ST bundle

ATARI PLANS ST LEARNING PACK

Atari is expected to launch an ST-based educational pack in March containing some software not yet available in this country.

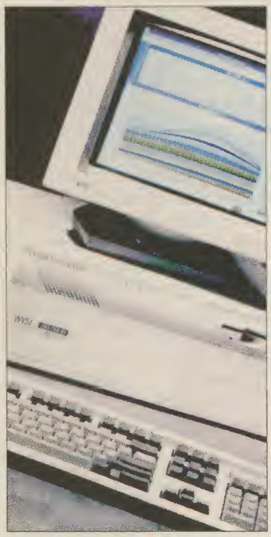
The bundle is a direct response to Commodore's Class of the '90s educational pack for the Amiga which has been a massive success since it was launched in 1989. We understand it will feature simple small business software, an art program and some music utilities.

Marketing manager, Peter Stannard commented: "The strategy for the STE will be quite different in 1991 to 1990. We'll be concentrating on the benefits which the machine offers in terms of its computing power, rather than its ability to play games."

Trade rumour insists that the STE educational pack will retail at £499 – £100 above the basic price. Stannard refused to comment claiming that "price is speculative at the moment, as is the software". Atari will also offer a more expensive version of the bundle with a high-resolution mono monitor included.

Meanwhile, sources close to the company have confirmed that the exciting 16MHz Mega STE, launched in America late last year (*Express* 106), will arrive here within three months. It will retail at £899. ▨

• Atari ST: Atari's learning curve set for launch in March.



• Wyse move: 386 Decision.

SXs are sexy

A recent report claimed that the market for the 386SX family of PCs worldwide is expected to grow from 3 million units to 7 million over the next year. In Western Europe alone over a million and half SXs are expected to be sold.

With this in mind, Wyse Computers has announced the launch of a new mid-range PC. The Decision 386SX/20 comes with seven add-on slots and the ability to take on an Intel 80387SX math co-processor. It also makes use of shadow RAM, page-interleaved memory, and near-zero wait state architecture.

The Decision comes with either a 3.5-inch 1.44Mb or 5.25-inch 1.2Mb drives as standard with an optional 40Mb or 110Mb hard disk controller. It will be in the shops with MS-DOS 4.01 and an ergonomically designed keyboard.

Prices differ depending on configuration. The basic unit will set you back £1,185 going up to £1,865. For more information call 0734 342200. ▨

Programmers' meet

The programmers' union, the Society of Software Authors, will be holding its first conference of 1991 at the Bournemouth International Centre on Saturday January 25.

The one-day conference is aimed at games programmers, as well as musicians, designers, and publishers. According to the SSA, the reason behind the get together is to "further continue the SSA's efforts to increase professionalism and understanding on the development community".

Several speakers will be in attendance, including Steve Cook, formerly of *Ace* magazine; David Braben the author of *Elite* and *Virus*, and Tom Watson of the Renegade label.

To lighten up the day there will also be A Question of Software quiz. Two star-studded panels will take part. Names here include Ocean's Gary Bracey, Andrew Wright from Virgin Games, and Eric Matthews of the Bitmap Brothers

Opening time is 10am on Saturday 25th. Price is £15 per person, or £10 for SSA members. For ticket information write to SSA, PO Box 598, Bournemouth BH6 3YB. ▨

And mine's a Stellar

Stellar 7, out this week, is an upgraded version of the 1983 3D arcade-style game of the same name.

Published by Dynamix, a subsidiary of noted adventure house Sierra, the PC game features 256-colour graphics, hand painted backgrounds, and a 15 song soundtrack.

It draws on the old *Stellar 7* as well making use of Dynamic 3Space technology which is said to provide animation and faster running speed than conventional systems.

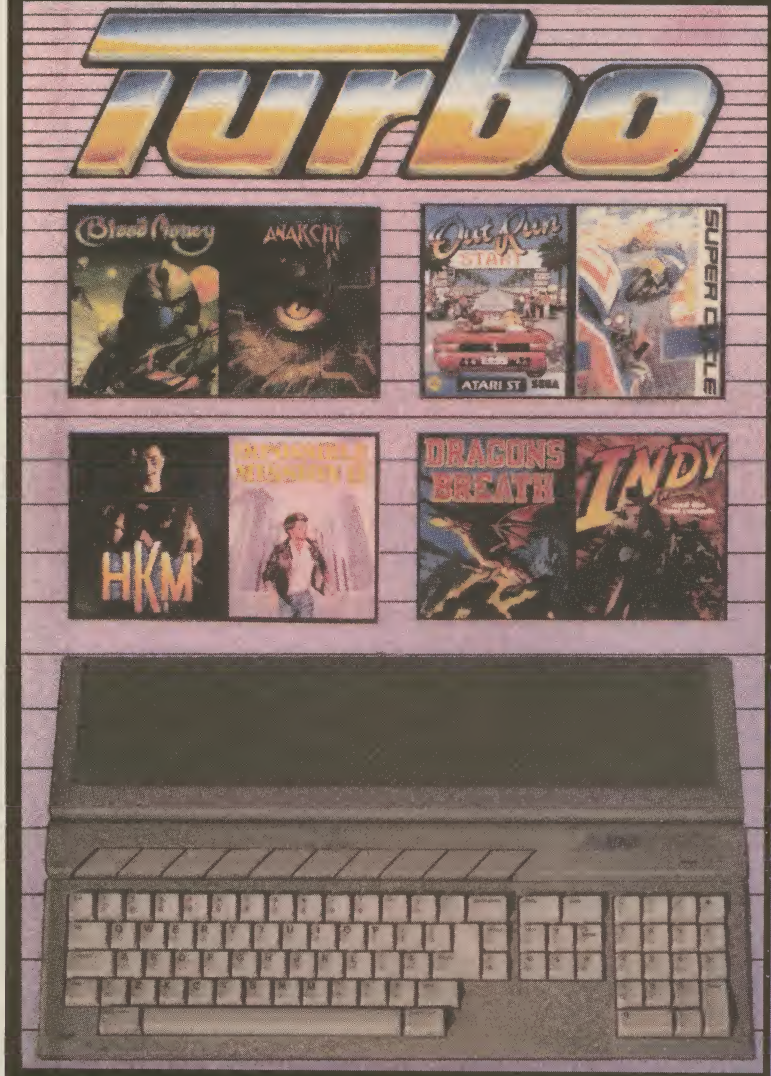
And the plot? You are Earth's only hope against the psychotic, but fiendishly clever, Arturan Empire. To make life easier you're armed with some heavy-duty fighting machines. To make it more difficult, there are seven levels of play, and you have to stand-off against Gir Draxon, the despicable head honcho.

There are digitised graphics, a stereo soundtrack, and sound effects galore.

Price is £24.99. For more information call the firm on 0734 303322. ▨

ATARI ST

"E" & "FM"



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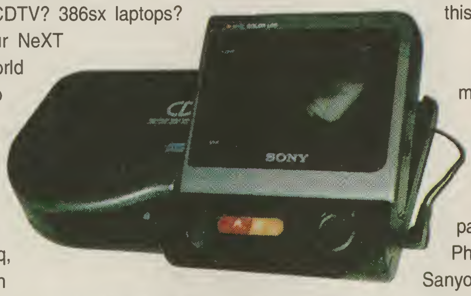
THE YEAR IN VIEW

As we kick off into 1991, Andy Storer takes a look forward to Express's news pages to come.

More players equals more competition equals more innovation equals more news. Yes another year's all set to unfold.

Last year in *Express* we reckon we covered something like 2,000 stories in our news pages alone. 2,000 announcements, launches, events and informed rumours. So which ones stood out above the crowd and look like going at least some of the way in defining the major leads for 1991? The low-cost Macs? The console boom? *Windows 3*? CDTV? 386sx laptops? Japanese palmtops? Colour NeXT workstations? Amiga world domination? A Nintendo universe?



• Star of the year – the Sony hand-held CD-I.

Of course. Apple, Nintendo, Sega, Atari, SNK, NEC, Microsoft, Commodore, Toshiba, Amstrad, Sharp, Compaq, Sony, Panasonic – even NeXT – they're all making announcements nearly every month; investing time and money in that most delicate of markets – advertorial. At the launch of the new Macs, when asked how his company was going to advertise the machines, one Apple marketing man told me: "Oh, well that's your job isn't it?" Perhaps it is not our job as such, but yes, personal computing does seem to be the one area where most new products are greeted with enthusiasm. Well, we're all enthusiasts aren't we ? For even if we can't afford a NeXT machine or an Intel Sigma we can still drool over the specifications and wish they were ours.

And the machine which made me enthuse more than any other last year? Well it was in the palm of a Japanese hand at the CD-I conference back in June. Philips, Sony and Matsushita showing off a range of machines all set for shipping in Japan and the US later this year. The star of the show? The star of the year really. Sony's handheld CD-I machine. Interactive video, photography, animation, graphics and CD quality sound all in one little magic box. Put it alongside compatible desktop machines from Philips, Panasonic, Epson, Sanyo, Fujitsu, Toshiba and Yamaha and you have a seriously global standard waiting in the wings. Add JVC and Pioneer's CD-I units to that list and you have the first signs of non-computer manufacturers catching on to the huge potential market of computing as a true mass consumer industry. Which is, presumably, what all we enthusiasts want – more players equals more competition equals more choice equals more value for money. ■

Express Access

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With your host Haydn – the man with the fivers to give away

Write and tell HFW what you think about anything under the Sun! Reach him at: *Express Mail, 30 Monmouth Street, Bath BA1 2BW.* Sorry, no personal replies, even with an SAE, as we're too busy writing the magazine.

■ Operating system blues

I have sat back now for a long, long time reading the forever excellent *Express*, and reading everybody in the universe as they rip computer specifications to pieces. You never see programmers write in do you! Well I'm a programmer, and I am going to start a programmers' 'MCIBTYC' debate. I would like to take a different path. not 'MCIBTYC' but 'MCOSIMNTPTYCOS', or 'My computer's operating system is much nicer to program than your computer's operating system'.

Here we go: isn't the Amiga's OS absolutely vile and disgusting, and aren't the ST's/Archie's/PC's OS's a dream by comparison! Never mind who has the most DMA channels, you try and write a quick utility with an OS that's so complicated that by the time you're half-way through your program, you forgot why you were writing it! Who the hell wrote the Amiga's OS anyway? Must have been piddled out of his head if you ask me! The main thing that bugs me (pardon the pun) is the 'Official Commodore Newsletters' – they always state 'Use the Amiga's OS only, never use the hardware directly'. Can you imagine playing *Shadow of the Beast* under 'Intuition'?!!!

No, I'm afraid I just don't get along with the Amiga's OS, 'powerful multitasking' my bottom! 'Complex and crashful slowtasking' is more like it! Ever tried accessing Intuition in machine code – NIGHTMARE! Ever tried running a few simple tasks – slap five or six clocks up on screen, and it slows down depressingly (probably crashes too!) Now try it on an Archie!

Then there's the ST; nice simple calls, with the barest of information required, off it goes, does what you ask it to, returns from a subroutine to the correct address unlike the Amiga (which I am convinced forgets its stack pointer from time to time!). Then the Archie – such a massive machine, you'd think the OS would be like hell, but no, nice simple SWI calls. What the heck happened to the Amiga?

Commodore, I'm begging you. Please release a new Amiga with a programmable version of the OS.

Gary Thomlinson, Doncaster

A genuinely new twist to the 'MCIBT...' debate there, Gary. Well done. You collect a fiver for your trouble. You almost collected another fiver for being the correspondent who used the most exclamation marks in a letter, but seeing as I'm suffering after the Chrimble festivities, I'm not in that good a mood.

Anyone else like to comment from a programmer's point of view?

H F-W

■ Sugar and spice?

You asked readers why we think there are so few women in computers. My theory is that girls are taught 'sugar and spice and all things nice' ie, they are feminine while boys are butch (well, Tim Smith is the exception). Boys play football – we have *Kick Off II* and so on; young boys play cars (older ones just joyride) so we have *Out Run* and the like; boys like fighting and we have an endless list of beat-'em-ups and shoot-'em-ups.

In short, computers are butch, and before you blame the programmers let me say that it's easy to write a program about Action Man that is exciting and addictive, but I'd like to see something addictive about Barbie and Sindy! Girls like putting on make-up. A computer can't do this. So human evolution is to blame

You also asked why there was so little computer coverage on TV. Well what I would like to say is that the British Government just released figures to say that about 15 per cent (I'm not sure) of the homes in Britain have a home computer. I would like to ask the BBC: Do 15 per cent of homes have a full sized snooker table in them? Well do they? ... No I didn't think so. The Beeb is biased and I rest my case.

Pauric O'Callaghan, Killybegs, Co Donegal

Uh Oh. I don't think your view on women in computing is going to go down too well in certain quarters. 'Computers are butch' indeed! And the fact that you can't see anything potentially addictive in Sindy, Barbie or even My Little Pony is merely an illustration of the effects that social conditioning have had on your outlook. Clearly you have developed a blinkered slugs, snails and puppy dogs' tails attitude.

H F-W

■ Old Holborn?

So you wish the endless 'MCIBTY' debate had ended? Well, tough luck. One of your column writers (Jason Holborn) doesn't have anything to write other than a (jealous) attack on the new Mega STE! At this rate, the end of the debate will only come when there are no more STs and Amigas around (atomic bomb etc.).

Let me show you what kind of crap this chap is talking about. So, he thinks some extra speed is only useful with number-crunching programs? Ha! You'd be surprised what a pleasure it is to see the desktop/DTP/WP/ANY screen redraw faster – just a second faster. If not, why do you take the bike for a visit to the local grocery store if it's just a few minutes faster than walking?

So what if the Amiga has better sound? Do you need blasting explosions when word processing or DTP? The Mega STE users won't be using it for games anyway. Forget AmigaDOS when it comes down to user friendliness! It works/looks like a chaos! Have you seen the new TT desktop? (The Mega STE has the same desktop.) What a pleasure to use, without looking like a game's menu.

Multi-task huh? Why the hell do you need multi-task if the whole system crashes when one application hangs up? (I don't want to work on my report together with a big database when I know one of them is going to hang the whole system if it falls over.) Multi-tasking is only useful if applications can work fully independently from one another.

So, Mr Holborn, just do your job and write about your beloved Amiga and leave us ST users alone!

Jay Lee, Capell a/d yssel, Holland

You ought to have a chat with Gary Thomlinson I reckon Jay. The two of you have a lot in common. And Jason is entitled to his opinions, after all...

H F-W

■ Invitation to Paradise

Here at Paradise Computers we are currently writing a general information pack for ST users containing articles on everything connected with the ST, from PD to consumer surveys, to the best mag to read etc. The brochure/newsheet will be available totally free of charge to anybody who wants one. We are also deciding whether or not to include a free disk packed full of the best PD around.

What we need is help from ST users. We would like anybody with budding journalistic talents (Steve Carey need not bother! Sorry, private joke) to write into us with any ideas for articles they would like to write. In return they will be paid in ST public domain. I'm sorry we can't afford to pay cash, but as we're not going to charge for the pack, people can't complain. We're looking for any article ST-related, so get writing.

Anybody wishing to send in finished articles should ideally have them on *First Word (+)* format but if not, just written will suffice. Ideally, we like people to tell us about an article first – we might be able to give people contacts to get some extra information.

The pack will hopefully be available in the New Year, but it will be publicised as soon as its available.

Neil Slater, Paradise Computers, 9 Westfield Crescent, Brighton BN1 8JB

Seeing as I had such a praise-packed letter from one of your customers the other week, I couldn't resist running your appeal. Good luck with the project – and make sure you send me a copy as soon as it's finished.

H F-W

■ Missed opportunities

In *Express* 108 there was a letter from Samantha Clements who began by ridiculing the opinions of a Mr Lawton (who I thought made,a number of decent observations) and then proceeded to mouth off a load of rubbish herself. She claims that females only become programmers to beat men at the occupation.

Are we to assume then, that the brilliant adventure designer Anita Sinclair had nothing else in mind other than being a superior being than male programmers? Samantha Clements, don't ridicule a person's opinions when they are quite clearly a damn sight more realistic than those pathetic observations of your own.

Secondly, many people have written to complain about you dropping the sections for the minority micros. I myself have owned in my time an Oric 1, Oric Atmos, and an Atari 800XL, none of which could now be classed as 'main stream micros', I'm sure that you'll agree

I stuck with these machines (and still use them regularly) because I felt 'loyal' to them in a way, and moaned and groaned like the rest when you dropped the minority machines columns. However, I have since moved onto an ST and it's made one hell of a difference to my opinions. I love my old machines and still use them, but I more often use my ST and recognise it as the machine that I'll devote most of my time and finances to.

A message to others who refuse to move on to updated micros due to this 'loyalty' to their current micros: go on and upgrade, you'll realise how your opinions were holding you back from enjoying and using the very best in software and hardware !

'The Ultimate Good Guy', Birmingham

Sensible opinions, stupid name. There's no way I'm going to make out a postal order for £5 in the name of 'The Ultimate Good Guy', so you lose out, pal!

H F-W

■ Mystery problem

Your reply to David Hancock in *Express* 109 is fine if Hybrid Arts still exists and or the author's name and whereabouts are known. But in the world of programming at the level we are talking about, software houses come and go (often with orders unfulfilled for which they have taken punters' hard-earned cash) and stating the program author's name seems to have been the exception rather than the rule.

I have one program in mind which never worked properly: screen dumps didn't, and there were other shortcomings which elicited no reply when reported by letter or in person to the distributors, who effectively washed their hands of any responsibility by refusing to pass on comments or reveal the name and address of the author.

So I had a program which didn't work, and no way of getting anyone to do anything about it. In the end, my son managed to get it working, and I would certainly see nothing wrong in passing this know-how to others who bought this program. I now have a program which is arguably the best of its kind, but I would be in trouble if I gave copies away.

It's no good FAST jumping up and down about piracy in the circumstances I describe. If they want to do something useful, they could set up a register of programs, publishers and authors that we could refer to so that the due credit (literally) could be given in the circumstances I describe.

Paul King, Hassocks, Sussex

But what was the program you had all this difficulty with? I think we should be told.

H F-W

■ Oy, Ref!

I bought *Player Manager* by Anco when it was first released. I have managed several teams successfully and have a number of cups to my credit. After getting fed up with my current squad, I started a new team – Vark United. On my second season, I was promoted to the Second Division. It was my fifth league match, at home against Leeds Utd, and we were winning 2-1.

The it happened. Just before half time, the pitch was invaded by screaming fans. The kop was set alight, the seats were torn apart and thrown on the pitch, and my star player was injured. The repairs almost bankrupted me. What I want to know is: where were the police and ambulance services? The ref was nowhere to be seen... my poor little pixel pals could have been injured seriously.

What's even worse, in the next match – a cup-tie against Luton – a fight broke out between my number ten and the opposing team's number eight. Maybe Anco should warn people who wish to purchase their excellent products about the dangers, and the heartache!

On a more serious note, the TV Moan letter from Kevin Patton-Smith deserves more discussion. For a start, there's no point in getting the BBC to do a computer program as they would call it the *All Formats Micro Show* or somesuch, with the titles done on an Archimedes. A typical running order would be: games reviews – this week we have Elite, and ...erm Elite, and ho, don't forget Elite. Then the slot which shows you how to build one of those square Lego robots with wheels controlled by an... erm... BBC Micro.

The TV bods have no idea. What is needed is a magazine on TV with a good mixture of topics rammed into 45 minutes to an hour. So just what is the problem eh? The silly sods who make the TV programmes.

Why don't we computer users do what the thousands of *Dr Who* fans did on 30th November this year – they rang the BBC to complain about not showing *Dr Who*. Might work, you never know...

J S Smith, Sheffield

And you really expect me to believe all that stuff about seeing little men fighting on the football pitch in *Player Manager*? Send me a snap of it happening and I'll not only believe you Mr Smith, I'll send you a tenner!

As to the BBC's non-coverage of computers, don't forget that they are not the only TV channel to ignore the subject. It might be worth making a few 'phone calls – but did they get *Dr Who* back?

H F-W

■ Public dilemma

How relieved I was to read in Adam Waring's PD column of his views on PD demos. It thought it must be my advanced age of 41 that left me totally non-plussed with 99 per cent of the demos that litter the catalogues of Amiga PD libraries.

How refreshing to find that I had no need to remain mute about this, and it seem that I am not alone in my annoyance at having to wade through reams of demo listings to find decent utilities or games.

It seems a terrible waste of a new generation's obvious talent that the end result of many hours of programming seems to be a boring five minutes of bouncing letters, balls and so on.

I would love to see some gameplay, especially strategy and tactical games, emerging into the growing fringe world of PD. The talent is there, but where is the inclination?

E Morrison, Wakefield

It may have something to do with the fact that writing a demo is an easy way to show off your talents, and involves much less sustained effort that writing a complete game. Has anyone else got something to add to the PD debate that Adam kicked off in his column?

H F-W

■ Older reader...

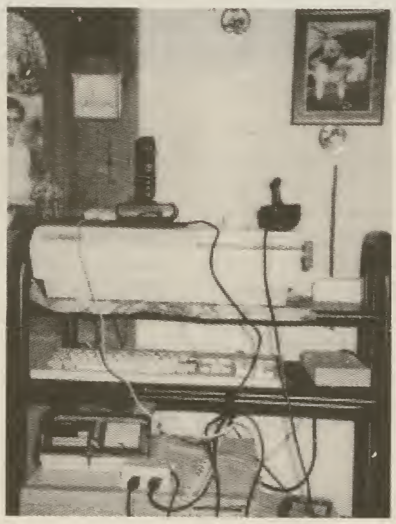
I read with interest the comment of a 52-year-old reader in *Express* 110. I am 63 years old next month. I have an Amiga 2000, Xerox 4020 printer and Sharp JX100 scanner. I use the computer for games – especially golf sims – and do a lot of artwork for my own pleasure.

At the moment I am making calendars for 1991 with pictures that are of special interest to the people I will be giving them to.

F Barnes, Barwell, Leicester

A pretty impressive set-up you have there Mr Barnes – I'll award you a fiver for being the first of our older readers to drop me a line.

H F-W



• A new angle on the MCIBTYM debate – the MCIOTY (my computer is older than yours debate!

MAIL SHORTS

■ Balls

In reply to your response to my letter in *Express* 110... Compared to billiards, snooker is a lot of balls.

Kevin Patton-Smith, Norfolk

...and so's a fair bit of what Tim Smith has to say, but there we go.

H F-W

■ Beastie Boy

After seeing *Altered Beast* on the Sega Megadrive in your mag I dashed down to the shop and I couldn't believe what I saw. What an absolute classic! Instantly playable, stunning to look at, amazine sounds, great use of colour, a real teaser, definitely ten out of ten. And her sister wasn't bad either! Ha Ha Ha. I'll let you know what the gameplay is like. Forget about computers.

Waz The Sexist, Bexhill-on-Sea

Waz The Pillock, if you ask me.

H F-W

■ Lynx Fan

Virgin's Nick Alexander is correct in saying the Atari Lynx and Sega GameGear are as different as a compact disc and a cassette player. As long as he realises that it's the Lynx that's the CD and the GameGear the cassette!

I work in a large department store, and the Lynx has been selling like hot cakes. It's really going to take off once programmers start exploiting the console's superior features.

John Alfred, Hyde, Cheshire

So how many GameGear games have you seen in order to make such a sweeping statement, eh John?

H F-W

■ Would-be Watchman?

I read that games watches were going to be sold in this country – games like *Robocop* and so on. The only trouble is, I don't know where to get one. I've searched through your ads and catalogues like Argos, but no luck. Any chance you could tell me?

Nicholas Farley, Bourne, Lincs

No. But I'm sure I saw some game watches in a Rumbelows catalogue. Otherwise try your local toy store...

H F-W

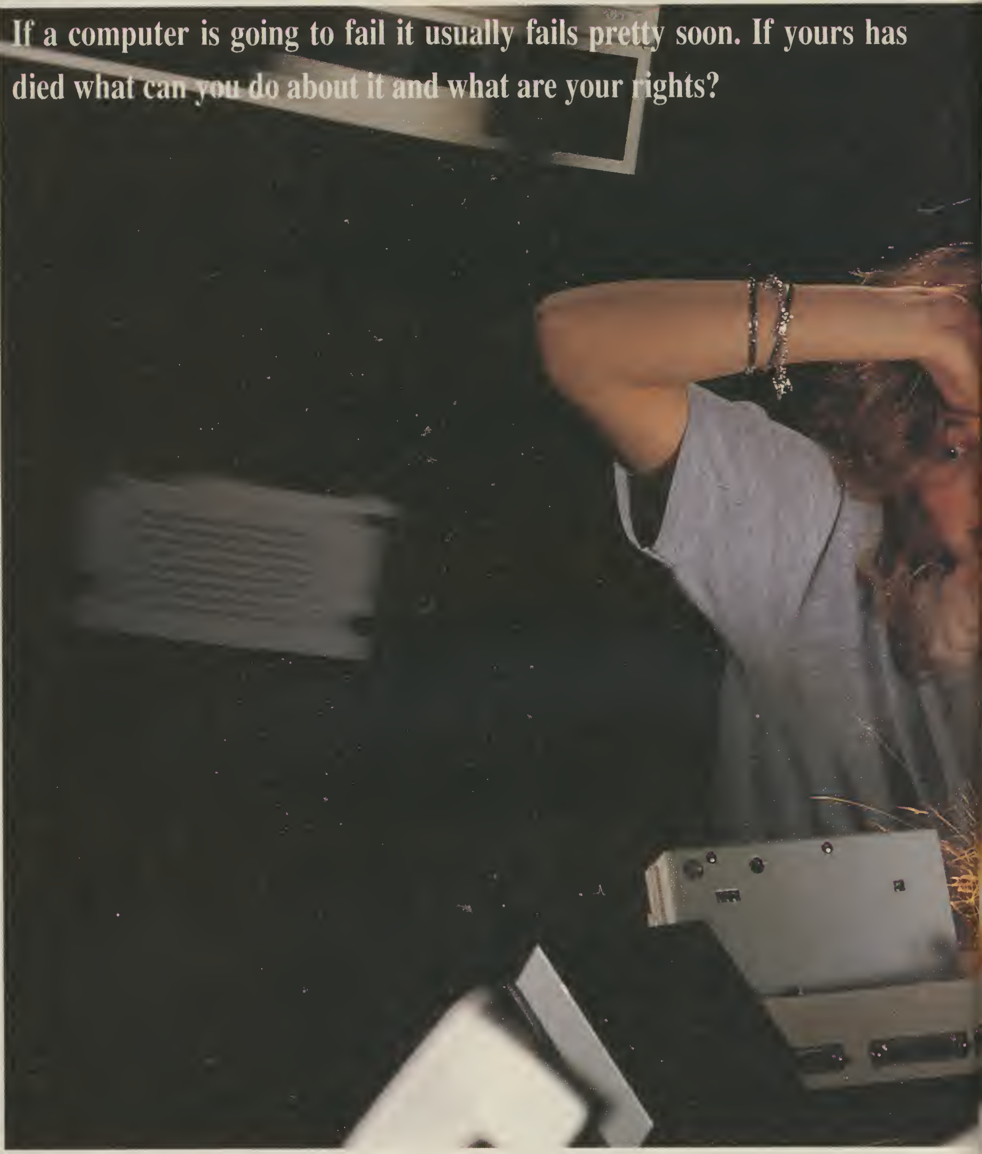
■ Ad-mad

Am I the only person who mentally will the boomerang to bop the aborigine in THAT Commodore advert on the head and send him hurtling over the cliff?

The Android, Rhyl, Clwy

GONE WITH

If a computer is going to fail it usually fails pretty soon. If yours has died what can you do about it and what are your rights?



Electrical goods fall into two categories; those that work and those that don't. You usually find out pretty soon what stable your new machine falls in; it's a characteristic of electronics that it either packs up in the first few minutes or it will last a lifetime. There are exceptions of course, but it holds true for most computers that if they work the first day they'll carry on working until you're bored of them.

In the last week more computers have been turned on for the first time than at any other time of the year. Unfortunately that means there are more disappointed people staring at blank screens or sniffing the smell of burning insulation than at any other time. Many faults turn out not to be faults at all but just improper setting up. Either way, what can you do about it?

CHECKING IT OUT

The vast majority of broken computers are not broken at all, just not set up properly. The first and golden rule is: READ THE MANUAL. Of course its obvious, but it's seldom done. The more experienced with computers you are, the less likely you are to actually sit down with the book before ripping out the polystyrene and plugging in. The number of review products that come into this office and don't work simply because no one bothered to read the installation instructions is embarrassing.

All computers come with a manual, and somewhere in that manual is a section called Installation or Setting up. Read it. Make sure you understand it. Then attempt it, with the book open by your side. You wouldn't attempt to put an MFI desk together without the piece of paper telling you that screw 12 goes in hole z, so don't try to do the same with an Amiga.

Unfortunately many installation manuals are about as much use as that MFI Taiwanese photocopy. In which case your best bet is to find someone who knows how to get the machines set up. There are only a dozen or so different computers out there, so someone you know must already have one. Swallow your pride and ask Bob next door how to get the ST going; he'll love the opportunity to show off his knowledge and you'll save a lot of heartache.

OK, you are the only Amiga owner on Mull or you have no friends, then what do you do? The first thing to check is the power connections; yes once again its obvious but do it anyway. Particularly dodgy are the kettle lead affairs which the ST and most PCs use; ensure they are rammed as hard in the sockets as you can get them. It's easy enough to tell if the power is getting to an Amiga – the power light comes on. Archimedes also feature this handy indicator. With an ST the disk light should come on as soon as the power is applied. A PC is more complex; listen for a beep to start with, then see if the disk light comes on a few seconds later.

If you're not getting any juice, check the fuse in the plug and the wiring; while you're at it you could swap the 13 amp fuse the manufacturer almost certainly put in the plug for a more suitable 3 or 5 amp number. Still nothing? Make sure the socket works by trying something else in it then pack the whole thing up to be taken back where you found it, it's dead.

If the power's getting there but you can't see anything on the screen, check the connections; make sure you have the right plug in the right socket and (obvious again) the monitor's switched on. The monitor will have dials to control brightness and contrast; fiddle with them to make sure that you could see the display if there was one – brightness on maximum, contrast on minimum.

If you are using the machine with a TV check the tuning on the box. Use a channel you don't otherwise need – Channel 7 will do – and, with the computer on sweep the range of frequencies from top to bottom. Fine tuning is essential for best results. If your telly has automatic fine tuning try switching it off to see if you get better results. If you are using the video out of the computer remember to switch the video in on the TV, if it has such a switch.

If you are getting a picture but nothing seems to work properly then more detective work is required. An Amiga will need a Workbench disk inserting; if you happen do have a corrupted one that could explain a lot. Try starting the machine with a game's disk in the drive; if the game works but starting from Workbench doesn't, go back to the shop to get a replacement disk. STs don't need a start up disk, but the supplied programs are just as likely to be damaged. Try several disks.

When you get into the realms of troubleshooting a new PC we would need a 300-page issue to cover half of it. A few points to try are these.

- When the PC starts up it goes through a set of diagnostic tests on the screen. If anything goes wrong with these the thing will bleep like crazy and tell you what has happened. Something like a 'memory parity error' or suchlike is serious and involves a return to the shop. A 'diskette type mismatch' can mean one of two things – either the machine hasn't been set up properly, in which case read the manual, or a disk drive is broken.

- If you have a hard disk PC which passes the start up diagnostics then stops, try putting the MS-DOS floppy disk which comes with the machine in the A: drive and starting it up. If it boots up then the hard disk has not been set up correctly. Some dealers ship 'raw' hard disks which need formatting, check to see if yours is one of them, if it is it's manual time again. Otherwise you have a broken machine on your hands. It could be the connections between the hard disk and its controller card, but you'd probably be better off shipping it back.

- If the PC appears to work reasonably correctly, but some of the characters on the keyboard don't match what appears on the screen you need to get your keyboard drivers set up properly. The part of the manual to delve in is the KEYB command in the MS-DOS manual.

H A BANG!

There are plenty of other thing which can go wrong with a 'nearly working' PC; many of them can be traced to the vital AUTOEXEC.BAT and CONFIG.SYS files. Large hard disks can require special drivers which must be specified in the CONFIG.SYS file. Similarly memory over 640K will be invisible unless your CONFIG.SYS reads right. A deal of experimentation and manual reading is needed to get these right; alternatively invest in a book such as *PC Troubleshooter* by Ian Sinclair (ISBN 1-855058-216-5).

If your computer works fine but the printer doesn't there are a few things to check. First of all, there are two kinds of printers – those which attach to the serial port and those which are connected to the parallel socket. Check which yours in plugged into and make sure the computer software knows which one to use. The Preferences utility is a great help with an Amiga.

For a PC remember that the serial port is called COM1, the parallel is LPT1 but many programs use the general PRN, which can be either depending on how the machine is set up. If in doubt, specify.

Next check your software is using the appropriate printer driver; your software manual is the place to look. If you can't find your model on the list in the manual try "Epson FX-80" – 9 times out of 10 this will work fine.

The last thing to check is the printer's setup. Somewhere under the cover will be a set of tiny dip switches; the printer's manual will tell you what each of them do. Check that the settings match what the computer's software is expecting.

There are a lot of tiny things which can completely throw a computer; for instance an Atari ST can lock up completely if you have an autofire joystick plugged in with the autofire switched on.

To sum up, if you can find someone who owns the same machine that you have, get them to help you out. Read all the manuals carefully. Try things out one step at a time to see what goes wrong. Finally, don't be afraid to ask the company you bought the machine from. ■

WHAT ARE YOUR RIGHTS?

You have a number of legal (statutory) rights when you buy a computer. If you buy a second-hand machine your rights are based around the description which the vendor gave when you bought it. If what they told you was wrong then you have a legal comeback on them; otherwise you don't. If the machine packs in soon after buying it you only have legal recourse if it was described as 'reliable' or something similar.

With brand new machines your rights are considerably more extensive. Anything you buy new, from a shop or by mail order, must fulfill three criteria:

1) It must be of 'merchantable quality'. In other words it must not be damaged or broken before you are sold it. You may have to prove that you didn't damage the machine later, so it is worth checking the actual machine you are buying before leaving the shop.

2) It must be 'as described'. A shopkeeper cannot sell you an A500 and tell you it has a megabyte of memory and expect to get away with it. For mail order firms the advertisement constitutes the description. If the box of a game has superb graphics which are not clearly labelled as coming from a NeXT 16 million colour display instead of a Spectrum, the Speccy owner is within their rights to demand their money back.

3) It must be fit for its purpose. A computer must compute, a printer must print, a word processor must handle text correctly.

If any of these rules are broken you are entitled to your money back – don't be fobbed off with a credit note, the law is on your side. Alternatively you can insist on the firm carrying out a repair, or on a cash rebate being made to the value of the damage to the goods.

If you need help getting your rights the best place to go is your local Citizens' Advice Bureau. If you don't know where it is check in the phone book or ask in the library (which can also be a useful source of 'know your rights' leaflets.)

REPAIRS

If your machine is broken then it will probably be under guarantee, so just take it back to where you bought it and demand that they repair it or else. If you've been a naughty chap and opened up the box or otherwise invalidated the guarantee you'll have to pay (that doesn't apply to PC owners who are allowed to open their machines without affecting their statutory rights).

The big manufacturers operate their own repair schemes, but they're not cheap. You do however get the guarantee that they'll use the genuine parts. Try these numbers:

Atari: 081-309 7770
Commodore: 0733 361216
Amstrad: 0277 230222

Third parties can often offer better deals. Make sure you get a quote before you let a repairer loose. It's not unknown for the repair to cost more than the computer. Check Shopping Express for repairer, or have a look in your local Yellow Pages. Alternatively these are worth a shot:

Ladbroke Computing (Preston) 0772 203166
WTS (Luton) 0582 491949
Electronic Services (Blackpool) 0253 822708
GB Systems Link (Surrey) 081-979 5638
B & B Computer Systems (Huddersfield) 0484 430970.

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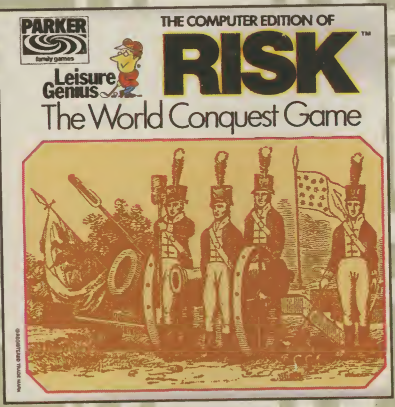
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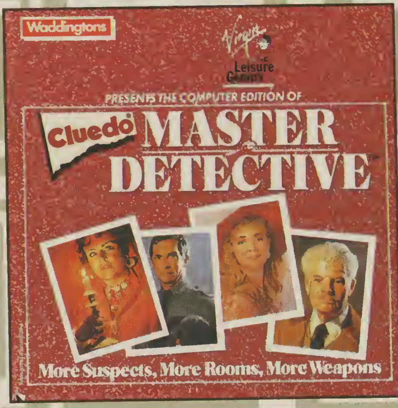
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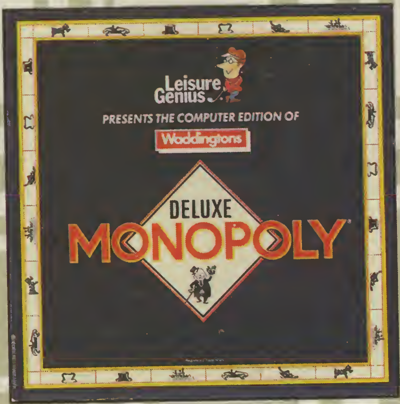
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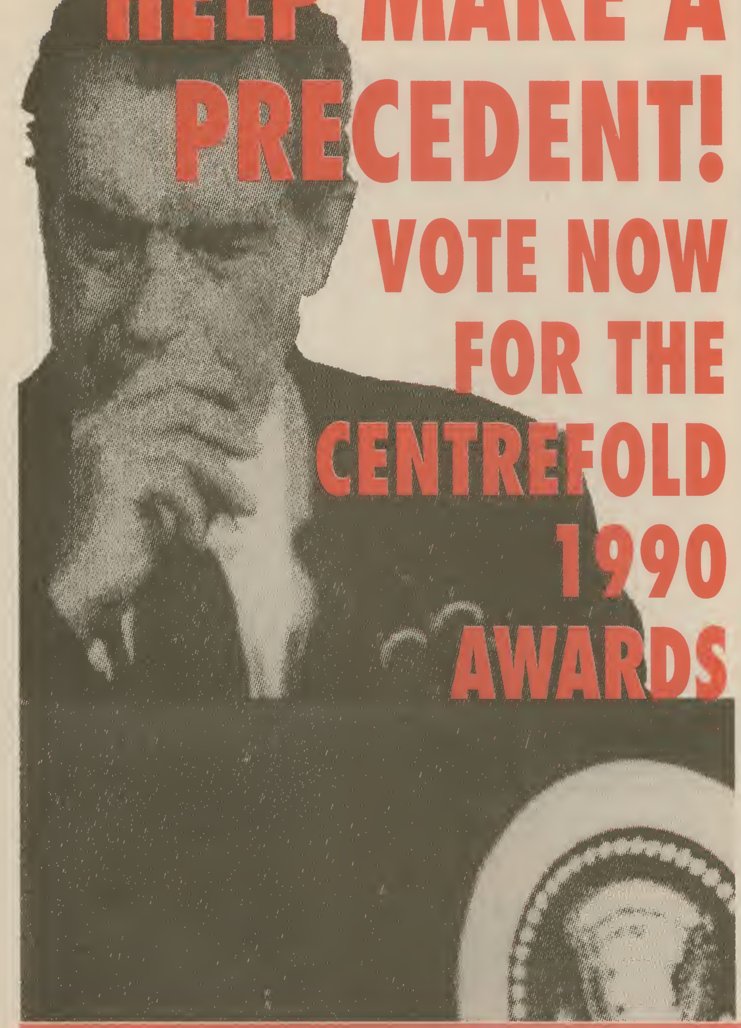

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TRADE ENQUIRIES WELCOME

Macintosh

RESEDIT 1

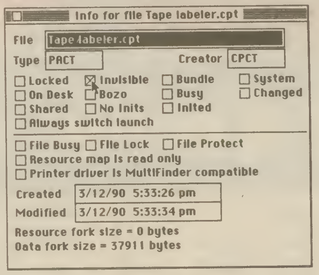
So there you go. That was Christmas. Did Santa leave you a shiny new Mac Classic or LC under the Christmas tree? He certainly had the money to spare – he left me a new pair of socks and three initialled handkerchiefs, so he came in well under budget on my account.

If you were given a Classic, here's another little tip for you. Boot up using the ROM disk (remember that? Restart holding down Command-Option-X-O). Although there appear to be no files there, in fact there are. They're just hidden. If you use one of the utilities that lets you look at all the files on a disk – including the hidden ones – you'll see them. (I've not actually tested this – the info came from *MacWeek* magazine, but since it was first to reveal the existence of the ROM disk itself, I'd be inclined to trust them...)

One way of making the files visible is to use *ResEdit*. I've talked about this program before; it's the one Apple developed to help novice users destroy files beyond all repair by hacking about will-the-mill. But if used carefully, it can work wonders.

For example, the problem above – making invisible files visible. Launch *ResEdit*, select the file you want to make visible, and (without opening it) hit Command-I (or select 'Get Info' from the File menu). The display which appears has a number of check-boxes for such things as whether it's a System file, whether it's been Inited (no, I've no idea what it means either) and whether it's Bundled (ditto).

The one that interests us is the one which decides whether it's invisible or not. Just click on the box to uncheck it, close the window, confirm that you want to save changes and Quit from ResEdit. That's all there is to it. If the file doesn't immediately appear, Restart the Mac; that should fix things.

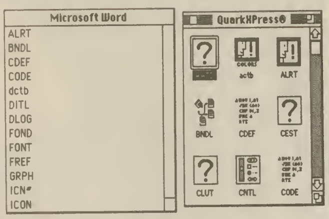

Info for file Tape labeler.cpt
File: Tape labeler.cpt
Type: PACT
Creator: CPCT
☐ Locked ☒ Invisible ☐ Bundle ☐ System
☐ On Desk ☐ Bozo ☐ Busy ☐ Changed
☐ Shared ☐ No Inits ☐ Inited
☐ Always switch launch
☐ File Busy ☐ File Lock ☐ File Protect
☐ Resource map is read only
☐ Printer driver is MultiFinder compatible
Created: 3/12/90 5:33:26 pm
Modified: 3/12/90 5:33:34 pm
Resource fork size = 0 bytes
Data fork size = 37911 bytes

• *Just click off the 'Invisible' check box to make the file appear...*

RESEDIT 2

Talking of *ResEdit*, I laid my hands on version 2 the other day. This a complete re-write of the original, and is what Apple call 'System 7-ready', which means that it will still work when System 7 finally appears.

It's really rather neat, and well worth searching out. If you can't find it through the normal PD software sources (and not that many have it yet) it's available from a bulletin board called 'Buz Board'. The number to call is 081-202 9175, and the protocols required are eight data bits, no parity, one stop bit. While it doesn't just cater for the Mac, the Mac software for downloading is pretty good, and contains a number of things that I haven't seen elsewhere.



• *On the left,* **ResEdit 1.3.** *On the right, the much clearer* **ResEdit 2.**

For details of other BBSs that have Macintosh areas, you'll have to wait for a couple of weeks, when I'll be doing a whole column on Mac comms. So if you run, or know of, a bulletin board which caters for the Mac drop me a line at *Express* or e-mail me: iwrigley on CIX or 100016,320 on CompuServe (or, if you don't have accounts on either of those, then 100016.320@compuserve.com on Internet).

BEST GAME

Forget strategy. Forget simulations. The best game of 1990 for the Mac had to be *Solarian II*. And the miracle is that it doesn't cost a fortune.

It's a shareware game (the fee is $25), and was written by Ben Haller, who deserves a medal of some kind. The game is a sort of *Galaxian*-like affair, only much, much harder. It only works on 8-bit colour machines, but everyone who owns such a Mac should have a copy of this game.

Sadly, I couldn't show you a screen grab of the software in action, because it won't talk to my screen-capturing utility, but you'd lose a lot of the effect in black-and-white anyway.

As usual, it should be available from most shareware/public domain libraries, and if not it's available on the CIX bulletin board (in the 'mac' conference, 'files' topic).

DISK UTILITIES

I've recently had two new disk utility packages in for review – *Microcom 911 Utilities* and *MacTools*. Both are good, and seem to work well. *MacTools* probably just wins out on ease of use but *911 Utilities* is my favourite. This is because with it comes a troubleshooting book packed with details of hundreds of possible crashes, bombs and errors along with the methods to avoid or cure them, and a wealth of information on such topics as the way files are stored on disks, directory structures and other teccy bits.

Both are more technical to use than *Norton Utilities* for the Macintosh, about which I've written in a previous column, but can still be used by anyone with a little common sense. Which of the three you buy is a matter of personal taste but I'd say that *Norton* is great if you are a novice or if you want to periodically check your hard disk for any possible damage while *MacTools* is a good all-round buy and *911 Utilities* is great for teccies.

So there you go. *MacTools* (£99) is available from Macsel (081-568 8866), while *911 Utilities* (£129) and *Norton Utilities* (£75) can be purchased from Softline (081-642 4242).

Ian Wrigley

POSTCARD FROM AMERICA

Meanwhile, in Silicon Valley, David Morgenstern has been having problems with his Mac...

It's past midnight. My jaw muscles have been working overtime stress-testing my dental enamel and fillings. What I really want to tear into is my hard disk.

Here's a little tip: never do anything different when you've got something important to do. Don't try a new brand of shampoo before a date, or you'll break out in hives. Don't wear a out-of-the-box new pair of shoes to a marathon. Certainly do not add a half dozen new inits and CDEVs into your System Folder, while on a deadline.

I must have some deep compulsion to 'fix' something, even when everything's working fine. The computer hasn't crashed in weeks – time to stir things up. Doesn't everyone enjoy staying up all night re-installing their System, fixing corrupted files, and bombing time and again into my friendly debugger? Stay away from those tempting silicon bonbons!

The chutzpah was flying out in buckets from the Microsoft booth at Comdex. They're trying to sell Macintosh developers on a set of operating system extensions, Application Programming Interface (API), that will compete with Apple's System 7.0 *Interapplication Communication (IAC)* software. IAC will enable programs to talk and drive each other.

Microsoft's alternative technology would also work in Windows applications, so supposedly programs running in a mixed PC environment will be able to operate more efficiently. The company claims that its IAC-ware (running on top of System 7.0) will work better than the system level Apple code. The way Windows works better than the Mac Operating System? Time for a head-shaking, eye-rolling break.

Bill Gates will have to stand in line with the rest of the we-can-do-anything-better crowd. Last summer at MacHack '90, the annual Macintosh technical conference, a TOPS Inc. employee said the exact same thing and threw in SUN workstations to boot. My unreleased software can beat up your unreleased software with its armature tied behind its back.

PC

PD ON CASSETTE

As you all probably know, there's a thriving public domain scene going for the CPC, with lots of new libraries springing up all the time and an ever-increasing number of programs being donated by kindly souls with a bent for programming.

However, while all this is fine for 6128 owners, it's not so good for those with a 464. Why? Because hardly any PD libraries these days offer software on cassette. Robot PD used to be the mainstay for tape users, but now even that bastion of bargains is losing interest in the format. The reason is that transferring stuff to tape is deadly slow. The medium itself is cheap but time is money, as they say, and if you've got to turn around dozens of cassettes a day and can only charge a pittance for each you're bound to grow tired of it sooner or later?

Well, maybe you're not, as Tony Kingsmill writes:

"[Readers] may be please to know that I run a PD library called Data PD and I support both tape and disk. Since I started it up about six months ago, I have collected over 2,000K of software, including games, educational titles, utilities etc. If anyone's interested, send 30p or an SAE for a newsletter, or send for sample programs by enclosing an SAE, 50p and a blank tape/disk. (If you're overseas you can send an extra £1 instead of an SAE.) Please make cheques payable to T. Kingsmill."

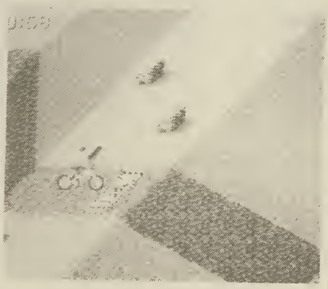
Handy, eh? Write to: DATA Public Domain Library, 202 Park Street Lane, Park Street, St Albans, Hertfordshire AL2 2AQ.

EPYX WORLD OF SPORTS

Well, we had to pull a few strings for this one, but it just so happens we wangled a production master of US Gold's console sports sim just as it was heading off to the duplicators. So what's it like, eh?

Well, the first news is that the game looks simply stunning. It really is hard to believe it's running on an 8-bit machine. The programmers have obviously done some very clever things with the sprites, incorporating lots of the things into the background – how else could they have generated screens done in the 16-colour mode (I think) but with far more resolution than any Amstrad game out to date? It really looks as if it's running on an ST...

But what of the game itself – or games? There are four to choose from, and the use of the word 'world' in the title is well-advised, because the



• Epyx World of Sports: BMX-ing is not exactly what you'd call an international sporting event is it...?

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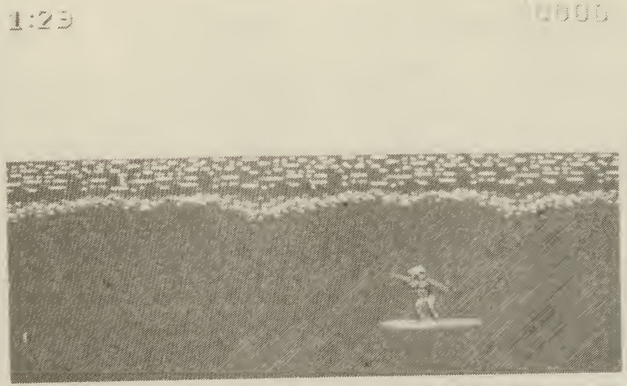

• **Epyx World of Sport:** ***That's you on the surfboard, approximately five seconds before you're submerged under a 30-foot breaker...***

sporting disciplines chosen derive not only from all walks of life but all parts of the globe!

First is BMX riding, where you have to pedal your bike from down a treacherous, hazard-strewn course. You can pull wheelies and jump hay bales and logs for extra points, but early on you'll be content just to stay in the saddle. Your bike stakes in the same position on-screen, but the scenery scrolls from bottom right to top left which is unusual.

After the BMX riding you go skiing. (I told you it was varied!) Here you guide your skier down a slippery slope strewn with gates which you have to pass through to score. It starts off easy, but becomes progressively tougher...

Then you're off to an extremely high cliff-top for some diving. You must gauge your leap into space to co-incide with the swell of the sea below if you're not to crack your noggin on the rocks at the bottom. On the way down you can pick up points with aerial tricks, but most will be content to hit the water cleanly and come up in one piece.

Finally, there's surfing. You guide your Hawaiian shorts-clad surfer as a monster wave crashes towards the shore. Again, there are plenty of trick moves you can execute to bump up your score.

It's only after you've played *World of Sports* for a while that you realise it's all a bit thin. This is a great shame, bearing in mind how spectacular the graphics are. It's not that the events are either too easy or too difficult, as much as the fact that they're all rather short and there's not much incentive to do well – unless you're a determined scores-keeper or playing a mate. It's a pretty good idea to make it possible to play subsequent events regardless of whether you scored in the one before, but it does remove some of the incentive to keep improving. Still, you can't have everything.

If the graphics are stupendous, the sound isn't too far behind – and the game features many genuinely humorous touches. One of these is the way the pelican sitting on a rock during the diving event covers its eyes when you foul it up...

As a game, *Epyx World of Sports* is good, but not great. As a showpiece for the new console hardware, however, it is amazing.

It costs £24.95, which is a welcome relief after the £30 tags of other console games we've seen. It's still plenty, but if other publishers can come up with the same standard of graphics, it's not bad value. After all, 16-bit games cost £20 to £25, and they don't load in a second!

MULTIFACE POKES

We haven't had any Multiface pokes for a while, have we?
(No, we haven't)
But we'd like some more, wouldn't we?
(Yes, we would)
OK, since you insist, here are just a small selection for those with little black boxes...

Castle Master		
`7E7F}`	`00`	`Inf energy`
`6B29}`	`00`	
`7305}`	`00`	
Tennis Cup		
`8968`	`3A`	`Inf credits`
Camelot Warrior		
`089E`	`00`	`Inf lives`
Supersam		
`9BE2`	`00`	`Inf lives`
Conquest		
`77D7`	`A7`	`Inf energy`

Rod Lawton

Amiga

RAY TRACING GOES CHEAP

PD fanatics will need no introduction to Tobias Richter. Although Tobias is best known for his fanatical interest in all things *Star Trek* (indeed, he's already written two *Star Trek* games and has produced countless *Star Trek* animations), some may also know him for his ray traced slideshow disks.

If you've never seen them, then you're in for a shock-put simply, they are nothing short of stunning. But what really makes them is Tobias' use of texture mapping which allows him to add a certain feeling of reality to many of his creations.

The good news is that the package that Tobias uses to produce all this ray traced work is to be translated for sale in the UK. From what I've already heard about this revolutionary system, *Reflections* looks set to blow away most of the competition not only in terms of raw performance and power, but also in price. A decent ray tracing package would previously set you back something in excess of £100, but rumour has it that plans are afoot to sell the package for just £30!

The package is to be made available as two separate modules which can be linked together to form a single working environment. The first (which is £30) consists of a very powerful object editor and ray tracing module, whilst the second adds animation facilities to *Reflections* (this will cost a further £30). I'm sure that when *Reflections* does arrive, many more people will decide to take the plunge into what is undoubtedly a fascinating and often rewarding area of computing on the Amiga.

WORKBENCH 2.0 LATEST

In a shock development at Commodore HQ, A500s may well be left out in the cold when the company officially releases the new Workbench 2.0 early next year for Amigas other than the 3000 series. According to Andrew Ball at Commodore, there are currently no plans to release the upgrade for Commodore's most popular Amiga. Surprisingly,the company seems to feel that the vast majority of A500 owners either want or need the new Workbench.

Although sources in both this country and across the Atlantic have confirmed the existence of the new A500 Professional (a 1Mb A500 with both ECS and Workbench 2.0), Andrew still insisted that the machine was nothing more than "speculation and hype".

With the recent release of the 1500 (which is essentially an Amiga B2000), Commodore has announced its plans for the 2000. According to Ball, the machine is to be repositioned as a graphics/CADCAM workstation. As a result, the machine will be bundled complete with a 40 Mb hard drive and both ECS and Workbench 2.0 as from next January. "If people want Workbench 2.0, then they'll have to buy a 2000" added Ball. Surprisingly, Commodore has no plans to upgrade the 1500 to Workbench 2.0 – this will remain 1.3-based.

However, although Commodore is to officially offer an upgrade for existing B2000 owners (A2000 owners won't be able to upgrade), it will also be perfectly possible for 1500 owners to take advantage of the offer. This should actually turn out cheaper for 1500 owners,because (unlike the 1500) not all 2000s are fitted with the new FatterAgnus. No price for the upgrade has yet been fixed, so we'll just have to wait and see.

On the subject of the 2000, Andrew Ball did reveal to me that as well as the new operating system and chip set, the new 2000s are also to be sold complete with the Amiga A3000 multimedia authoring system, AmigaVision. For the rest of us, this will also be available separately. For more information, contact Commodore on 0628 770088.

ST FOR FREE

After the current spate of ST emulator releases for the Amiga, I was interested to receive a disk from Deeper Domain PD (081 204 3954) that claimed to contain no less than a fully working PD ST Emulator. Naturally I was sceptical, but sure enough it (mostly) works.

Unlike commercial ST emulators, the PD emulator doesn't require you to mess around with TOS files ripped from a real ST. All you have to do is boot up the disk, select the emulator from the disk menu and after a few seconds, your Amiga is transformed into a fully working Atari ST clone. Whoever wrote the emulator has deliberately built a German version of TOS into the emulator. The problem is TOS is the copyrighted property of Atari Inc, so I can see problems arising if Atari find out about this latest emulator (take my advice, buy it while you can!).

Like it's commercial counterparts, the emulator allows all three Atari screen modes to be used on a standard Amiga monitor at the same time – something that even a real Atari can't manage!

The emulator certainly isn't as compatible as commercial ST Emulators – Chamaleon in particular runs rings around it – but it seems to run a high proportion of 'legal' Atari software. I managed to obtain a number of Atari applications up and running, including *CZAndroid*, Degas *Elite* and the Cosh PD MIDI sequencer. And because the emulator both reads and writes Atari-format diskettes, you can use disks from an Atari without any need for any form of transfer software.

ALTERNATIVE TITLING

Long time video specialists Alternative Image has announced that it intends branching out into software publishing. Its first product,'The Big Alternative Scroller' (price £50) is a powerful video captioning package that also includes comprehensive text scrolling facilities, making it ideal for both conventional video titling and teleprompting within TV studios.

According to Alternative, what really makes the product special is its ease of use. The product was developed to be so simple to use that "it could be used within twenty minutes by the kind of person that wouldn't know the back end of a computer from an elephant," according to Alternative's own Henri Bujko.

As a result, there's no pull down menus to mess with,just simple keystrokes control all aspects of the program's operation.

Using the program is a lot like using a conventional text editor. Unlike previous programs of the type, your text can be typed directly onto the screen and then set to any one of the twenty fonts built into the system.

Alternative has included its own range of specially designed high resolution fonts, all of which were developed specifically with desktop video in mind. These range from script-like fonts, to serifs and san-serifs.

Speed is another aspect of the Alternative Scroller that really makes it shine. Because the fonts are actually built into the program, there's no need to endure time consuming disk accesses – just select the text you wish to change, press a key on the keyboard and the text changes almost instantly.

Also, because your text is treated like text within a word processor, it too can be changed instantly.You can right justify the text, centre it or just leave it ragged.

With a name like Big Alternative Scroller, you'd be right to expect the program to produce something more than just static screens. It can scroll titles both horizontally and vertically at up to nine different speeds. The speed of scrolling can be controlled interactively, therefore allowing you to alter it at any time during a presentation. You can also

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dynamically control both the position and margins, therefore allowing you to create all manner of video titling effects.

Also on the drawing board at Alternative is a vastly enhanced version of the program designed with the professional user in mind. According to Alternative, the package is based around an amazing box of tricks called the Quantel Cypher. Although details have yet to be finalised, you can bet that the package will be pretty revolutionary. Alternative Image is on the other end of 0533 440041.

Jason Holborn

Archimedes

BACK IN THE VILLAGE

I went. I saw. I came back. I went back again on the Saturday as well, but I didn't see anything new.

The Acorn Village at the Shopper Show in Wembley last December was populated by most of the usual names of the Acorn world. Acorn itself (complete with a revolving 4ft Acorn atop their stand) was showing off 540s, CD ROMs and for those who cared to enquire, the latest rumours – portable Archie? Well, maybe next year...

Computer Concepts (with a revolving Charles Moir) had its Laser Direct hi-res (600dpi, eight page per minute, #1500) on show, as well as *Impression 2.05* – complete with the latest tweaks and bug fixes. The Serial Port (which had nothing revolving) was displaying some new desktop software for its joystick interface along with its rather natty true 256 colour enhancer. This was fully working, but not on sale.

The strange thing about the Acorn Village was that despite there being 40 or so Acorn-orientated stands in one room, there were also a couple of rather misplaced Amiga magazines and some very general PD software stands to boot! Meanwhile, Cygnus Software (authors of the excellent *Twin World* and *Iron Lord*) was stuck out in the wilds of the main hall. *Micro User* was similarly isolated, although to be fair, it was on the Database Publications stand. This just meant that *Beebug*, *RISC User* and *BBC Acorn User* were lumbered with all the teccy questions.

Oh yes, while on the subject of BAU, I think they win the prize for the most casual use of high technology – an Archie 410/1 (complete with the dead snazzy Taxan 795 monitor) connected to two and a half grands worth of Integrex Colourcel printer *sitting on the floor*!. But you should have seen the quality of the output. Me want, me want, me want...

TWO MINUTES TO MIDNIGHT

While at the show I managed to pick up a copy of *Midnight Tracer* from Dabhand Computing, and most of the latest games (more of these even later).It is very tricky to describe exactly what *Tracer* does and why it's so useful. In fact, even seeing it demonstrated does not immediately reveal it's true value. But buy a copy, take it home and experiment with it for half an hour, and I'm sure you'll think of all sorts of things to do with it.

For example, take a sprite, any sprite, drop it onto the Tracer icon and click on in 'sprite window.' A few seconds later, hey presto, exactly the same thing in the 'object window'. Amazing eh! No? Ah, hang on though, the cunning thing has saved the output and load it into *!Draw* and click on the object with the right hand button. See?

Tracer has literally traced the object and turned it into a series of lines and bezier curves. Dead handy or what! A sub menu allows you to alter various parameters that control the actual tracing process. For example the distance between control points and the angle at which a curve will turn into a corner. Another menu lets you trace monochrome or colour images (one colour at a time) and then smooths the result before tracing.

The resulting draw files are remarkably good considering the complexity of task, but it is very unlikely you'll be able to get away without hand tweaking the object. Corners are not always detected brilliantly, often resulting in slight curves. Near-horizontal straight lines (ie ones that appear on screen as being quite jagged and in dire need of anti aliasing) are similarly treated and turned into a series of stepped curves!

The thing to remember is that a program like this can't do everything perfectly, and it's a trivial matter for a human to transfer the file to !Draw afterwards and remove the offending curves. It is possible to reduce some of these effects by twiddling with the various trace options. It's just a matter of trial and error. (Some very interesting results can be obtained by deliberately settings these to their coarsest values and tracing scanned photographs.) Once you have the final tweaked draw file you can then rescale, rotate and generally distort the image without any loss of detail or generating nasty pixelated edges! You could even scan some of your own handwriting and generate your own outline font from it.

When I first mentioned Dabhand's *Midnight Tracer* in *Express* 106 I also wrote about a possible future product to be called *Illustrator* (a sort of 'super' *!Draw*). It now seems likely that *Illustrator* has been shelved for a while, maybe indefinitely. Instead, Dabhand plans to release the freehand drawing part of *Illustator* as a product in it's own right. This takes a curve drawn freehand with the mouse and converts it into a series of smooth bezier curves, exactly the function you need for designing fonts.

If *Illustrator* does ever see the light of day – and I hope it does – it's likely to contain features such as stretching and distorting objects as well as simple drawing.

Funnily enough, *Tracer* was originally going to be part of *Illustrator*

THE EVIL THAT MEN DO

Your nasty and deranged uncle Zolphar has killed your daddy (the King) and taken the kingdom for his own. So goes the scenario for *Iron Lord* .

You must ride around the land, drumming up the favour and trust of the locals so that they will fight with you to defeat the evil Zolphar and put you, the rightful heir, on the throne.

Iron Lord is another conversion from Cygnus Software, and although written almost entirely in Basic, does not suffer in the slightest. It is a combination of graphical adventure, arcade action and strategy game with elements of logic, luck and skill.

For the first part of the game you must win the support of the locals by helping them out with their troubles. This involves visting the various towns and villages throughout the land. Nothing too complex here, just some well thought out puzzles that should take you quite a while to figure out. Except the archery contest, that is, which is far too drawn out, dull and boring. (You have to fire an absolute minimum of 84 arrows, but quite likely, many, many more).

The second part involves fighting your uncle's armies by giving simple orders to your own men in a strategic chess-like game. Finally you must venture into the labyrinth to kill Zolphar himself. As with the archery, this continues rather too long in the same vein to be fun.

Overall, though, *Iron Lord* is enjoyable, fun and thought provoking (apart from the archery and the labyrinth!). I eventually completed the game but only by cheating on absolutely everything. Cygnus Software is not planning to convert any more games at the moment as it wants to see how *Twin World* and *Iron Lord* are received and how well they sell.

as well (in fact, both 'Trace' and 'Freehand' are options on the development version of *Illustrator*), but Dabhand received so much interest in the tracer element of the software it decided to release it separately.

Tracer costs £60 and can be obtained from Dabhand who can be contacted on 061 766 8423.

ACES HIGH

Despite *Iron Lord* and *Twin World*, *Ball Arena* and *Tactic*, *WorldScape* and *Blowpipe* (more of these last three next week), my 'Most Played Game of the Week' award goes to *Mah Jong Patience* from CIS. This impressively produced desktop patience game is similar to *Pelmanism* (picking up matching pairs), but is played with *Mah Jong* tiles rather than cards. All the tiles are visible, stacked up in a pyramid and you can only match them up at the edges.

There are no flashy graphics, although the tiles are very nicely drawn, no complex scenario and there certainly aren't hundreds of keys to learn. It's just a fun game. £20 and it's yours. Bargain.

CIS can be can be contacted on 071-883 4023.

Ken Coumarin

PC

ALL IN ONE

Following my recent mention of an all-in-one-chip AT which has been developed in the US, Dr Sohail Bhatti writes to ask if I have any more information on the chip. The simple answer, I'm afraid, is not a lot, Sohail. The report I saw mentioned two devices; the Am286ZX designed for desktops and low power version the Am286LX; both are expected to go into volume manufacturing in the summer and will cost from $69 (£40) in quantity. That's all I know, except that the chip is made by Advanced Micro Devices in Austin, Texas, which is on 0101 512 385 8542.

QL CORNER

Sohail goes on to say (after mentioning he finds the column "refreshing and informative" – ta) that he asks this despite not actually owning a PC. "Of course, I do have one at work and find it a ?*!$% to use compared to my aging but multi-tasking QL. Incidentally, did you know that a company called Digital Precision has produced a software-based emulator for the QL which runs at 20-60 per cent of the speed of an XT! Considering that both are 8-bit machines that is quite an achievement – partially gained by using a simultaneous multi-tasking CGA screen emulator. The emulator itself is very robust and can multi-task, with only a two per cent loss of speed overhead. The only constraint at the moment is memory (limited to 876K on a QL), but with a recently-launched accelerator board both speed and memory constraints will dissapear".

I'm sure QL-owning PCers would be interested in this software, but unfortunately you didn't say how to get in touch with Digital Precision, and I can't find an address anywhere. Anybody out there know?

READING AND WRITING

If you have a scanner you can save a lot of time and money by using the scanner to input text instead of retyping it. Obviously you need some software to achieve this, and one of the best known programs in the US which does this is called *ReadRight*. Now in version 2.01, its been voted the best OCR software twice running by the American DTP magazine *Publish!* .

There is now a Windows version of the software which allows you do dis-assemble a printed page. You can define areas of the scan to be interpreted as text, and others to be saved out as TIFF or PCX files, so you can turn any publication back into its constituent parts for redesigning.

Unfortunately *ReadRight*, like all OCR software, has hefty requirements on the memory front; the Windows

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ATTRIB

There are around 20 separate utilities supplied with MS-DOS – more with every version it seem – yet most folk make little use of them.

Partly this is because they tend to be a trifle user hostile. Most are driven using command line parameters rather than menus. In fact FDISK is the only utility that uses interactive menus. Having to look up the correct parameters is usually enough to put a stop to any casual use.

Still, even apparently obscure utilities have very real uses. One that comes to mind is ATTRIB. This, as the name suggests, sets the attributes of files. Attributes are controlled by setting bits in the twelfth byte of the directory name. ATTRIB controls options to set the Read/Write and Archive bits (this is extended to Hidden and System bits under DR-DOS).

Setting the Read/Write bit to Read Only prevents files being accidentally deleted, something remarkably easy to do when clearing down a directory or floppy disk with the DEL command. As usual I favour a little batch file to make it quick and easy. Mine is called PROT.BAT (for protect)

```
ECHO OFF
ATTRIB +R %1 /S
```

along with its brother UNPROT.BAT

```
ECHO OFF
ATTRIB -R %1 /S
```

Note that the /S parameter is only valid in versions of MS-DOS 3.3 and above. This tells ATTRIB to look in subdirectories as well. To use these little batch files just call them like so:

```
PROT A:*.DAT
```

or whatever. Good fun eh? Those utilities are worth investigating.

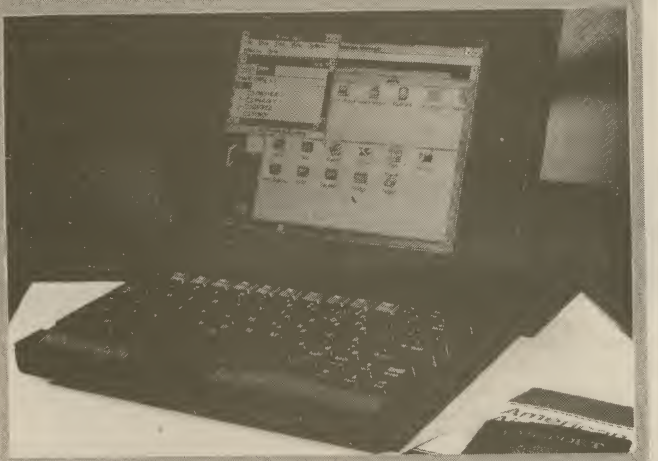
DIARY DATE

IBMophiles should scribble February 26 in their diaries. That's the first day of IBM '91, touted as being the solutions for business in the IBM environment, which goes on for three days at the NEC in Birmingham.

The organisers expect 20,000 people to come to see the 300 exhibitors, including Big Blue itself. For more details ring 0932 232592.

Stuart Anderton and Steve Patient

GRID IRON



Portables are just getting sexier and sexier. Try this spec for the GRiDCASE 1550SX (above), for size: 20MHz 386SX, 2Mb RAM, VGA display, 60Mb hard drive, 1.44Mb floppy, two serial ports, external monitor connection, internal modem, built-in mouse substitute (the Isopoint device used in the Outbound Mac laptop), Windows 3 and 386Max. It weighs 12lb and costs £4,450. Phone GRiD on 0372 460266.

64

STOCKING FILLER

The long awaited *Teenage Mutant Hero Turtles* game has finally come out of it's shell. In spite of the fact that the game would be destined to break all known records of soft[illegible] launch of ba[illegible]us market, it's a pretty decent game.

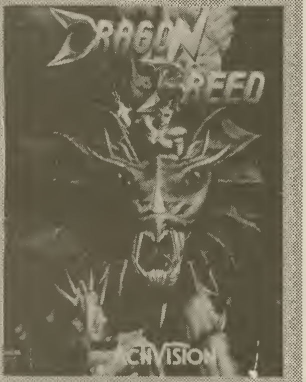
The main faults lie in the fact that the sprite code looks as if it's been hurriedly chucked into the rest of the package. Collision detection is not always what it should be and whole sprites shoddily disappear once they reach the edge of the screen.

Yet, believe it or not, it's a competent contribution to the ever growing list of platform games and should provide a fair amount of entertainment regardless of your opinion of the fad on which it's based. The worst thing about the affair, though, is the price. The cassette costs £13 and the disk £17. This smacks of

IMPRESSIVE BREED

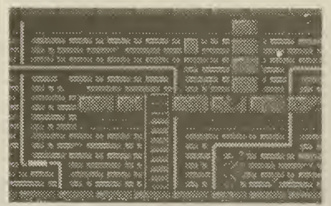
Winner of this week's technical expertise award is *Dragon Breed*. Some very clever palette switching goes on to ensure that a few cool colours not normally available to your Commodore show up in Activision's coin-op conversion. This highly playable game has some sophisticated programming. It has been carefully thought out and executed.

Some of the end-of-level baddies take up more than a single screen and the Martin Walker soundtrack is one of his best efforts to date (the opening is a stunner). The dragon's sprites are doing over-time so they can all appear on the screen at once and flicker as a result but when you get your head around what the 64's processor is up to, all is forgiven. A corker!



• Sprites work overtime in Activision's latest effort.

greed. Should you decide to take the plunge regardless (especially if you're not buying for yourself) be warned. The package I bought mentioned that several game-related gimmicks were enclosed within. Presumably, Mirrorsoft will use the presence of these gimmicks to justify its unreasonably high price for the product. Needless to say, my Turtles game came without stickers and the rest.



• A surprisingly good version of the Konami Turtles game is finally coughed up by Mirrorsoft.

ENTERTAINING RATRACE

A much better investment, should you be thinking of treating yourself with some of that influx of Christmas currency would be in Audiogenic's recently released version of the arcade game *Exterminator*.

In this peculiar vision of pest control, you manoeuvre a disembodied hand through the rooms of a number of houses plagued by self-propelled soft drinks cans, dangerously well-armed toy tanks and even some bugs normal enough to be considered standard exterminator territory.

The soundtrack provided for all of this is a manic rendition of the *Flight of the Bumble Bee* and the graphics, probably re-drawn over wide angle pictures of basements, kitchens and attics are spookily atmospheric.

WORKING THE NIGHTSHIFT

Night Shift has finally turned up and, by and large, lived up to expectations. In it, you control a worker trying to achieve prop production quotas at the Lucasfilm ranch factory.

This complex and demanding platform game is only slightly spoiled by the fact that sometimes, there's too much going on in one part of the screen to make any of it discernible. Otherwise, a neat treat if ever there was.

NEW YEAR NIBBLES

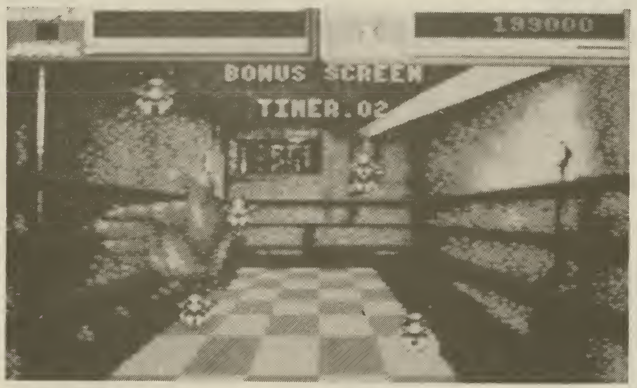
The same can't really be said for *UN Squadron*. Apart from being bundled with the most tasteless plot currently available, it's turned out to be a rather dull affair and will probably be forgotten by February. Take a look at it but I doubt if you'll disagree.

Narc and *E-SWAT* have arrived in time to keep the ambient cop-game level up. In *Narc* one or two players can share the fun of cleaning up some well dodgy city screens that have been infested with armed psychopaths who hide in every nook and cranny. It's fun and there are some very fruity graphics but the whole thing proves a little too easy.

E-SWAT, on the other hand, offers the prospect of an armoured exoskeleton to cops who make the grade by making arrests. Twelve levels and a gangland boss as bad as a Beadle on overdrive combine to make this a decent bash. But it gets no marks for originality, graphics or sound – all of which are standard issue thumb-twiddling material.

Get either of these if cash flow isn't a problem. Otherwise think twice.

Sean Masterson



• Bugs banished from the basement in Audiogenic's **Exterminator.**

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Spectrum

THAT WAS THE YEAR...

1991 eh? Lets hope it'll be a better year for the Spectrum than the one that's just seen the death of the Plus 3, the bankruptcy of Miles Gordon Technology and a gradual decline in sales.

Anyway, what I want to know is what you thought of 1990's crop of games. I didn't play that many through the year so I'm relying on you to let me know which titles coaxed your adrenal gland into activity, awoke you from your usual comatose state and had you waggling your joystick for all your worth.

And how do you think they compared to past glories? Was *Robocop 2* really better than *3D Ant Attack* or *Manic Miner*? Send me your top five fave raves of the year and any other comments on the state of Spectrum games as we know them to me c/o *Express*. There could well be a freebie of some sort for the most interesting one.

NEW COUPE HARDWARE

SAMCO has lined up a steaming batch of new hardware for the SAM Coupé. There's a new improved Disk Operating System written by SAM BASIC author Andy Wright, a card cage add on that allows you to connect lots of different hardware to your SAM at the same time and a 1Mb memory upgrade. Further details from SAMCO, Lakeside, Pheonix Way, Swansea SA7 9EH.

A FANZINE LIKE ZAT

I've just received the bumper Chrimbo edition of the Spectrum and SAM fanzine, ZAT and it's another corker. Included in this thirty page issue is the long awaited second instalment of the world exclusive interview with Matt Bielby of *Your Sinclair*.

Other good stuff includes a promising sounding listing that apparently allows SAM and Speccy owners to read files saved on the ST, lots of reviews of games and utilities and an outspoken Soapbox column. It's all excellently presented as usual with high quality art work and the variety of stuff inside makes for a guaranteed good read. A veritable snip at 60p plus SAE from ZAT, PO BOX 488, Tweedale, Telford, Shropshire TF7 4SU.

BREAK INTO COMPUTER JOUNALISM

Do you want to become a computer journo? ZAT is looking for two technically minded chappies who can program a bit. One is needed to cover the Speccy and the other to deal with the SAM Coupé.

The main things they'll need from you are helpful pokes, tips, DIY projects and routines. Would be contributors should contact ZAT through the above address. Your reward will be a free subscription.

POKES – THE FINAL CHAPTER?

The near legendary M Harris has been at it again. This time he's put his devious tip finding talents to use on the Plus D disk drive interface rather than any frivolous game. So if you want to use your Plus D for hacking, ripping off character sets and other such naughty pastimes the following snippet might come in handy:

POKE 27819 Start Address. Poke 28718 Length.

ie POKE @279,128 : POKE @ 288,128 will save the top 32K. When you're ready to save, press Snap button then press 3 and the result is one mega screen file!

M would also like the address of INDUG.Could some kind heated person write in with it? After all he's done it's the least we can do.

Here's the last batch of technically mined pokes from our old friend Robert J Baker of London. They're all concerned with Romantic Robots' lovely Multiface device:

Useful jump addresses for Multiface 1 users (POKE into 8192/3 and POKE 8194,1, then use the "jump" option from the main menu) – 000 to reset the machine (I use this one alot).

hex 11b& (ie 183 into 8192 and 17 into 8193) to do a NEW thus dropping you back into BASIC with any machine code above RAMTOP intact (great for crash recovery but be sure to check first that RAMTOP hasn't been corrupted).

Other useful Multiface 1 techniques:

- To recover from a crash whose only cause was an error occurring with interrupts disabled – POKE 16374 and 16376 with 255m then return.
- To force a system reset on those occasions when jumping to 0000 doesn't work – POKE 16383 with 61 and 16382 with 4, then return.
- To call the Multiface 1 from your own machine code (to set a breakpoint, for example) use the following routine:

```
PUSH everything vital
DI; if you haven't done this already
IN A,(#9F); page in M1
CALL #0066; M! main menu
IN Am (#5F);page out M1
E1; if needed
POP everything
```

Robert says he finds "the above especially useful if a routine is misbehaving, and I want to inspect the registers at a given point." which I hope means something to someone. Huge thanks to Robert and because I've still got a nasty case of Christmas spirit a free piece of software will be his also! Hurrah!

WHAT'S YOUR VIEW?

What do you think of this column? If you've got any criticisms, suggestions for improvements or ideas for things to cover in the future please let me know. Send everything to me, Robin Alway at The Spectrum Column, *New Computer Express*, Future Publishing, 30 Monmouth Street, Bath BA1 2BW. Thanks!

Robin Alway

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PORN FREE

Oh dear. Oh dear oh dear. Not only did my recent twofold outburst concerning the porn-peddling activities of Paradise PDL upset the people who run it, I also managed to get under the skin of the mysteriously christian nameless J Bain, who runs Caledonia PDL.

J Bain's complaint is that either the whole thing was a publicity stunt cooked up between myself and Paradise, or that I've been unwittingly been used as a naive pawn (no pun, presumably, intended) in the pursuit of some probably very welcome publicity.

"So what," J Bain continues, "are the chances of a decent, porn-free family library getting a mention in your excellent column (that's all the crawling you'll get from me matey)?"

Pretty good, I'd say, J Bain of Caledonia PDL, 250 Oldtown Rd, Hilton, Inverness IV2 4PT, charging as you do a very reasonable £2 per disk and offering first class delivery of orders and personal attention if customers call 0463 225736 (8am-10pm).

I am more than willing to offer any newly established PD library the same publicity. Indeed, I've been soliciting news and information from such ventures for nigh on 18 months. I can hardly help it if Paradise, porn peddlers though they be, are one of the few organisations smart enough to take advantage of this opportunity.

GDOS IMPROVES

Atari US has enhanced the ST's graphic operating system, more commonly known as GDOS. It's now called FSM GDOS, apparently a reference to Font Scaling Module.

Well, whatever it's called it's said to be much better, featuring a wonderful Ultrascript scaling routine, so that fonts look perfectly smooth whatever size they are.

No date has been set for UK release, though there are well-founded rumours that Atari may release the software free of charge.

SOUNDTRACKER HERE

It must be admitted that in one or two areas the Commodore Amiga games machine may just conceivably have the edge over the ST. The sound, for one, is undeniably better. (I was surprised that the upgrade STE didn't sort out this shortcoming.)

Now, however, you can write or play Amiga music on your ST, with the stunning music editor they're already calling *Noisetracker*. To my knowledge the first Public Domain Library to have the full English version of this excellent French program is The Demo Club.

And the Demo Club is supporting it heavily, with more than 30 double-sided disks of Amiga music files and tons of disks of instrument samples.

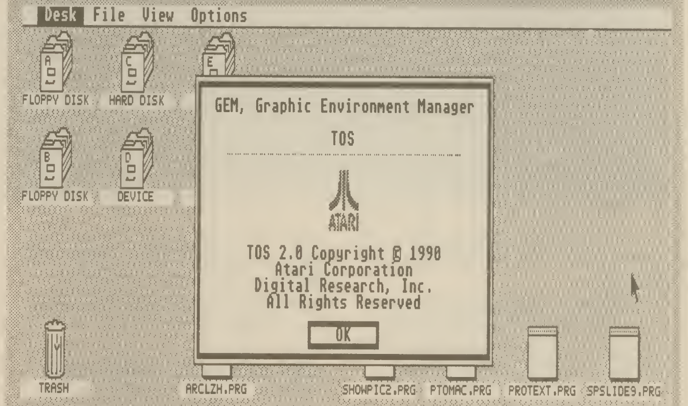
Next from the same source is a stereo (and therefore STE only) version that replays at 6.5, 12.5, 25 and even an unbelievable 50KHz. This is promised

THE TOS THAT KILLS

The news that there's a potentially dangerous version of the ST's operating system on the loose should give pause for thought. I've seen it available on several bulletin boards, including some that ought to know better, and all I can do is to reiterate the warnings given in other places: steer clear!

I know the temptation is to either pick it up and have a tinkle, or to say of Atari's warning, "Well, they would say that wouldn't they?"

But the fact is this is genuinely capable of screwing up your disks or even, horrors, your hard drive.



GEM, Graphic Environment Manager

TOS

ATARI

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DEFINITELY NOT PD

Already most ST users are familiar with the distinction between commercial software and non-copyright protected Public Domain. Most of us, too, know a little about shareware, software that includes a request for payment if you like and wish to use it.

But commissionware? That's a new one to me.

It's the brainchild of David Pullin, who intends to sell games and other programs exclusively through his PD library, Trust, but with copyright reserved and with 50p commission out the £3 asking price going to the author for each copy sold.

Besides promising an end to what David claims is the rip-off of software being sold without the author seeing any return, he also promises help with programming problems and queries, the setting up of a pool of routines, sprites, graphics and so on to which authors have free access. There should also be an ST-testing service something which is becoming more and more necessary as the range of differing machines continues to expand.

Seems like a bright idea. Potential authors – and indeed customers – should contact David Pullin, 3 Beacon Rd, Standish, Wigan WN6 OSB.

for some time early in the new year, and I for one await it with considerable anticipation.

Disks from The Demo Club cost £2.50 each (£1.50 if you supply your own disks). Write to The Demo Club, 23 Alma Place, Spilsby, Lincs PE23 5LB.

TRACKER MOVES ON UP

Carebear Anders Nilsson tells me that he is currently working hard on wrapping up *Tracker 1.2*, an upgrade to what is probably the best music making program for the ST.

I'm also told by MPH, the company which publishes *Tracker*, that it's planning to produce a cartridge to enable STs to produce quality stereo sound. The price is currently being guesstimated at a tenner, though I'll bet MPH boss Phil Harman a tenner of Future's vast fortunes that it ends up considerably more expensive.

MIDI MINDS ITS LANGUAGE

The latest issue of MIDI Monitor, the magazine of the United Kingdom MIDI Association, is out. And it features quite the most remarkably bad-taste guide to MIDI buzzwords it's been my displeasure to encounter.

Among depths plumbed by Vic Lennard and his foulmouthed friends are Running Status ("I really shouldn't have had that curry for lunch"), Bulk Dump ("and as for the chicken vindaloo...") and Active Sensing ("Using your tongue to check whether the mains is working – well, it works with a PP3!").

Nice one folks. Membership of the United Kingdom MIDI Association, which costs £34.50, gets you a copy of the monthly newsletter, as well as free advice and support on all matters MIDI-related. Write to: UKMA, 26 Brunswick Park Gardens, New Southgate, London N11 1EJ.

SOFTSELLERS DISAPPEARS

My commiserations to anyone who has an outstanding order with the recently defunct Softsellers of Ipswich (proprietor: Martin James). It hardly needs saying that you should not be tempted by old adverts to send any money to this company, at least not if you expect anything in return.

It's a rotten thing to happen to anyone, especially at this time of year when orders may well be for Christmas presents.

If you're in this unfortunate situation you should write to the official receivers to obtain an application form for money recovery, enclosing an SAE to Patterson and Thompson, 12 Lower Brook Street, Ipswich.

One suggestion is to pay for your orders by credit card, which by law incorporates a system that should see you getting a substantial proportion of your money back in situations such as this.

Once again, my sincerest commiserations.

Steve Carey

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All prices are correct at copy date 19/12/90, and are subject to change without prior notice. All prices are accurate while stocks last. Phone for up to date prices. All prices include VAT, there are no hidden extras (WYSIWYG). Delivery (in Mainland U.K) is free, on orders over £100 (add £10 for next day courier delivery. All prices available on Mail Order, Shop prices may differ.

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Our Engineers can repair ST's and Amiga's in minimum time at competetive rates. We also offer a diagnostic service for which the customer is given a quote for the total cost of repairing the machine.

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ST or Amiga Version
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New Prices

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2Mb ST board+chips, kit	£	159.99	4Mb ST boards+chips, fitted	£	344.99
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EXPRESS ON-LINE

Your weekly guide to the hundreds of bulletin boards and user groups now on three pages. This week's featured bulletin board is Voyager. And if you run a board, don't forget to write in with all the details!

• USER GROUPS

ACORN ARCHIMEDES – New disk package out in January. Watch this space or ring 051 608 5469.

AMIGA HELPLINE SERVICES – For Amiga users young and old, new users and anyone who is just stuck with an Amiga problem. Send SAE to G Keenan, The Amiga Helpline, 21 Skirsa Place, Glasgow, G23 3EE.

BURMAN'S PD – Amiga PD only 40p a disk. For a catalogue send a blank disk to Burman's PD, 41 Pinner Park, Gardens, Harrow, Middx, HA2 6LQ. Catalogue disk contains a few demos and a game all for free. Membership also free.

CHESHIRE 16-BIT USERS CLUB – Amiga, ST, PC, Arc at Radley Common community centre, off Poplars Avenue, Orford, Warrington, Friday nights, pm to 10.30pm. All welcome. £1 admission. Bring your machine if you can.

GENERAL AMIGA – new disk based magazine for the Amiga. Covers all areas of computing – programming, art/graphics, PD (buy or swap). Only £1.50 per issue. Send order to 19 Earn Court, Alloa, Clacks, FK10 1PT. Get a copy now.

ICPUG SOUTH EAST USER GROUP meets Biggin Hill Library most Thursdays. Lectures, open nights, Free PD. J Bickerstaff, 45 Brookscroft, Linton Glade, Croydon, CR0 9NA. Telephone 081-651 5436.

MEGADRIVE SWAPSHOP – carts bought, sold and exchanged. New games and titles available. Also megadrive games wanted. Titles available now include Rainbow Islands and Fatman. Telephone 0254 531 95.

SERIOUS GAMER – strategy RPG simulation adventure on the PC newsletter helpline. For more information write to Serious Gamer c/o Flat C, 43 Colvestone Crescent, London E8 2LG, Telephone 071 241 5446.

STEN – the ST enthusiasts newsletter. Send a disk and an SAE for your free copy to Dave Mooney, 14 School Road, Morningside, Newmains, Lanarkshire, 0698 382380.

TYPECAST! – new PD library for the ST/STE. Solely for DTP, WP, clip art and art programs. No games. Send a disk and SAE for Disk catalogue to Paul Sealy, 31 Hartfield Crescent, West Wickham, Kent BR4 9DW.

ACORN ARCHIMEDES.RISC user.117 Hatfield Road, St Albans, Herts AL1 1EX

ACORN ARCHIMEDES Archive, 18 Mile End Road, Norwich NR4 7Q

ADVENTURE PD – Amstrad Adventure PD wants anything adventurous (adventures, utilities etc). Will return tape/disk with other stuff on it.

AMATEUR RADIO (CBM) – write to Simon Lewis GM4PLM Commodore Radio Usrs Group, 69 Irvine Drive, North Clippens, Linwood, Paisley

AMATEUR RADIO 9COMMSO - If interested contact Pat & John Beedie GW6MOJ/MOK BARTG Ffynnonlas Salem, Llandeilo, Wales SA19 7NP. 0558 822 286 MBX 558 822 286

AMIGA CHEAT DISK FANZINE – JS Smith, 45 Maplecroft Crescent, Sheffield S9 1DN.

AMIGA DISK FANZINE – packed with information, reviews, art section and PD software. Send £3 for the latest issue to Paul Harthen, 43 Boyds Walk, Dukinfield, Cheshire, SK16 4AX.

AMIGA PUBLIC DOMAIN – Public Domain for the Amiga. 100s of disks available. Games, demos, utilities, music, graphics, etc. JJ Meachen, 59 Lee Road, Harwich, Essex, CO12 3SB. Hurry!

AMIGA PUBLIC DOMAIN. Amiga disk fanzine specialising in pd. Send sae for details to Chris Jackman,3 Albion Terrace, Lexham Road, Litcham, Kings Lynn, Norfolk

AMIGA PUBLIC DOMAIN USER GROUP – Ashley Tarver, 5 Saunders House, Binswood Avenue, Lemmington Spa, Warks, CV32 5RZ

AMSTRAD BUSINESS USRS - Amstrad Professional User Club, enterprise House PO BOX 10, Roper St, Pallion Ind Estate, Sunderland SR4 6SN. 091-510 8787

AMSTRAD CPC USERS - Tony Baker, United Amstrad User Gp, 26 Uplands Crescent, Fareham, Hants PO16 7JY. Telephone 0329 234 291

AMST. CPC HOME USERS - Steve Williams, WACCI, 9 South Close, Twickenham TW2 5JE. 081-898 1090

AMSTRAD LOCAL GROUPS - Amstrad Groups Federation, 4 Sutton Roadc, Gorton, Manchester

AMSTRAD PC SOFTWARE - Colin Smith, COLBAR, 10 Penwood cl, Westbury, Wilts BA13

AMSTRAD PCW - PD software: Bob Ellis 0432 761860 Queries: David Axford 0428 56438

AMSTRAD PCW - Bob Ellis "Rowan" 100 St Peters Close, Moreton-on-Lugg, Hereford HR4 8DW. 0432 761 860

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AMSTRAD 1512/1640/PPC - PC Independent User Group, The Computer Advice Centre 87 High Street, Tonbridge, Kent TN9 1RX Phone 0732 771 512

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APPLE II USERS – telephone 051 9284142 for further details

APPLE MACINTOSH. John Lewis, Macintosh user group, Macintosh House, 11 South Parade, Summertown, Oxford OX2 7JL

APPLE SYSTEMS – Irene Flaxman, Apple 2000, PO Box 3, Liverpool L21 8PY.

ARABIC COMPUTING – write to Rich Lackey, Arabits, 9 Bellview road, Worthing, West Sussex BN13 1EY

ASHTON TATE SOFTWARE - Silvia Robinson, Baseline, Ashton-Tate, 1 Bath Road, Maidenhead, Berts 0628 33123. Prestel page 43221

ATARI ALL MACHINES – Colin Hunt, BaPAUG, Wimborne Road, Oakdale, Dorset BH15 3EF

ATARI AND AMIGA PC EMULATOR SUPPORT CLUB – SAE to 153 Parrock Street, Gravesend, Kent, DA1 21ER

ATARI PORTFOLIO - D Gilpin, Atari Portfolio User Group, 84 Cambridge Avenue, Gidea Park, Romford RM2 6QU. 0708 730764

ATARI ST SOFTWARE – write to 16/32 PD library 35 Northcote Road, Strood, Kent ME2 2DH

ATARI ST - Paul Glover, The ST Club, 9 Sutton Place, 49 Stoney Street, Nottingham NG1 1LX. 0602 410241

ATARI ST/STE HELPLINE – We can scan, digitalise and provide loads of clip art. SAE to Nist S3, Lenaghan Park, Belfast, BT8 HJB

BBC MICRO - BEEBUG, 117 Hatfield Road, St Albans, Herts AL1 4JS. 0727 40303

BURNAMS PD – 41 Pinner Park Gardens, Harrow, Middx, HA2 6LQ

C64 PD CLUB – E Masaba, 84 Garmoyle Rd, Liverpool L15 3JH

C64 PUBLIC DOMAIN – Phoenix, 64 Plumberow, Basildon, Essex

C64 SOFTWARE LIBRARY – rent, swap or buy original cassettes. Free game when you join. For details send SAE to 12 Dagmar Road, Windsor, Berks, SL4 1JL.

C LANGUAGE - Martin Houston CUG (UK) Houston Technology Ltd, 14 Arden Oak Rd, Sheldon Birmingham BS26 3LX Telephone 021-722 3168

C USER GROUP –phone 0865 246490
CAMBRIDGE Z88 - Roy Woodward, Z88 Owners' Club, 68 Wellington St, Long Eaton, Nottingham

CD ROM - UK CD-ROM User Group, High Wings, Salem, Treforys, Abertawe 0792 844 370

CALAMUS USER GROUP – getting organised. Contact Dave on 0922 649410 evenings or write to Flat 3, 68 Corporation Street, West Walsall, West Midlands, WS1 3QR

CHOICE on-line help. Telephone: 0308 23224

Get yourself listed!

If you run a user group or bulletin board, don't miss out – fill in the form for a free entry and send it to Express On-line, 30 Monmouth Street, Bath BA1 2BW.

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CID (Computers and integration for the disabled) is a registered charity. Telephone 0467 24202, ask for Gordon

COBOL LANGUAGE - Allen Reavie 22 Mourneview St, Portadown, Northern Ireland. BT62 3AW

COMPUNET - Independent Compunet Club, 148 Furzehill road, Boreham Wood Herts

DATAEASE USER GROUP – High-Tech House, 10 Blackfriars Street, Norwich, NR3 1SJF

ECONET - Michael Ryan, Econet User Gp, Balkeerie Cottage, Eassie by Forfar, Angus DD8 1SR

ENET (like econet) - T K Boyd, Enet (Amcom) User Gp, Seaford Cottage, Petworth, West Sussex GU28 0NB

EXMOORE SOFTWARE – Queen Street, Lynton, N Devon EX 35 6AQ

COLECO ADAM - Keith Mamer, UKAS 33 Homer Road, Croydon CXR0 7SB

COMMODORE ALL MICROS - Jack Cohen, ICPUG 30 Brancaster Road, Newbury Park, Ilford IG2 7EP Telephone 081-346 0050 home: 081 579 1229 day

COMMODORE AMIGA - UK Amiga Users Group. Contact 144 Charles Street, Leicester LE2 0OD .0533 510066 voice; 0533 517615

CLARGY/MEDICAL EDUCATION – Mr T Jones, FREE-ED Shareware/PD 85 Stoke road, Taunton, Somerset TA1 3EL. 0823 321 481

COMMUNITY COMPUTING - Community Computing Network 2nd Floor, 35 Pink Lane, Newcastle, NE1 5DW 091-261 0317

COMPUCORP. Compucorp University users group c/o Compucorp, Cunningham House, Westfield Lan, Kenton, Middx

COMPUNET – write toIndependent Compunet Club, 148 Furzehill road, Boreham Wood Herts. WD6 2DX

CONFERENCING - Compulink, suite 2, The Scantuary, 23 Oakhill Grove, Surbiton, Surrey KT6 6DU Voice 081-390 8446 CIX BBS 081-399 5252

CPM & MSDOS Users Group – 42 Birkbeck Road, Wimbeldon, London SW19 9NZ. 081-543 0824

CRYPTOGRAPHY & CODES - Mike Barlow, American Cryptogram Association 5052 Chestnut Avenue Pierrefonds, Quebec HBZ 2A8 Canada

DATA PD LIBRARY for Amstrad CPC users. Send SAE, tape/disk and 50p to Kingsmill 202 Park Street Lane, Park St, St Albans, Herts AL2 2AQ

DISABLED - Jeff Hughes, Special Needs User Gp, 39 Eccleston Gardens, St Helens WA10 3BJ 0744 24608

DRAGON - Paul Grade, National Dragon Users Group, 6 Navarino Road, Worthing, Sussex or telephone 0903 207585

ECONET – write to Michael Ryan, Econet User Group, Balkeerie Cottage, Eassie by Forfar, Angus DD8 1SR

EDINBURGH AMIGA OWNERS – I would like to form a user group for all us over 18s (we can go to the pub that way). Interested? Please phone me on 332-4938

EDUCATION - Charles Shannon, TECUG, 35 Wellington St, Gravesend, Kent DA12 1JG. Tel 0474 567 931

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ENTERPRISE – William Creaser, 6 Provident Street, Shaw, Oldham, DL2 8AQ. Independent Enterprise User group. Tel 0706 881382 7-9pm

ENTERPRISE - Tim Box, Independent Enterprise User Group, 50 Holdenhurst Avenue, Finchley, London N12 0HX. 081-346 8032

FLIGHT SIMULATOR (MSDOS) - Alan Hawkins, SIMFLY Club 2 Henley Manor Raincliffe Ave, Scarborough YO12 5BU

FORTH Language - Douglas Neale, FIG (Forth Interest Group) UK, 58 Woodland Way, Morden, Surrey SM4 4DS

FRACTALS/CHAOS THEORY - Andy Lunness, 69 Bronte Avenue, Bury, Lancs BL9 9RN. Telephone 061-764 6469

GENEALOGISTS - Computer Group, Society of Genealogists, 14 Charterhouse Buildings, London EC1M 7BA. 071-251 8799

GENERAL HOME MICROS - Steve Winter, Chic Computer Club, PO BOX 121, Gerrards Cross, Bucks SL9 9JP 0753 884473

GUNNING PD ST PD – 47 Auchingane, The Tryst, Edinburgh, EH10 7HX

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HOUSING ASSOCIATIONS - Caroline Maries, Micro Users Ltd, Beaver Housing society, 23 Lewisham High Street, London SE13 5AF. Telephone 081-318 1126

HEALTH WORKERS - Sue Mckendrick, Healthlink, 164 Windsor Rd, Ashton-in-Makerfield, Wigan WN4 9ES. Voice: 0942 712 385

IBM PC - The IBM PC User Group PO BOX 360 Harrow HA1 4LQ.081-863 1191 BBS 081-863 6646

JOMAC USER GROUP Spectrum and Amiga tips and pokes sent every month. Write with SAE toJomac's, Filey Grove, Rhodes Street, Hull

JUPITER ACE – John Charter, Jupiter Ace Forth User Group, 17 Spring Wood Close, Dunston, Chesterfield S41 8BS. Tel 0246 237555

FIND YOUR LOCAL CLUB - John Dale, Banc y rhosyn, 14 Bron Y Glyn, Bronwydd Arms, Carmarthen SA33 6JB. 0267 230 771

LOCAL AUTHORITIES – Local Authority Micro User Group, John New, Borough Engineer's Dept, Municipal Offices, North Quay, Weymouth, Dorset DT4 8TA.. Tel 0305 785101 ext 272

LOTUS PRODUCTS - Lotus User Group, 79-80 Peascod St, Windsor, Berks SL4 1DH. Telephone 0753 841686

LYNX - R B Jones, Lynx User Group, 39 Ashton Close, Needingworth, St Ives, Cambs

LYNX DISK USER GROUP. J Koushappas. 172 Pasteur Gdns, London N18. Tel: 081 807 3859

MEGADRIVE CONSOLE CLUB – Megadrive games new, old, bought, sold. Also exchange games. Andrew Stanford (0789) 764039

MEMOTECH FILE – 93b StJohns Road, Biddulph, Staffs ST8 6LL

MEMOTECH - Phil Eyres - Memotech Owners Club, 23 Denmead Road, Harefield, Southampton SO2 5GS. Tel 0703 585106

MICROSOFT WORD - Lesley Port, Folly House, Madeira Walk, Bachelors Acre, Windsor, Berks. Tel 0753 831001

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NASCOM/80-BUS/CPM - Scorpio Systems, PO BOX 286, Aylesbury, Bucks HP22 6PU. 0296 624868

NEWBRAIN - Ron Bury, NewBrain Support Grp, 70 Cranberry Lane, Darwen, Lancs BB3 2HL 0254 771891

NIMBUG – write to 13 Belle Vue Ave, Gosforth, Newcastle-upon-Tyne NE3 1AH. Telephone 091-285 7806

NW ARCHIMEDES USER GROUP – Meets every Friday at Citizens Advice Bureau, next to Spectrum arena in Birchwood, Warrington. Ring Paul on 051-426 3915 after 6pm

OS/2 - Karen Burns, OS/2 User Group,Cecily Hill Castle, Cirencester, Glos LG7 2EF Telephone 0285 655888

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PC/PD CLUB – write to 48 King William Drive, Cheltenham, Glos, GL53 7RP

PC SOFTWARE – PC Serve, 1147 Greenford Rd, Greenford, Middx UB6 0DP 081-864 2611, BBS 081-864 2633

PHILOSOPHY APPLE - G Haines, Chinese Room Club, 43 Cornwallis Gdns, Hastings, East Sussex TN34 1LX. 0424 714 102

PICK OPERATING SYSTEM - Hugh Kellt, UK Pick Users Assocn, PO BOX 907, London N10 2SB. 081-462 4666

PRESTEL - Andy Leeder, ClubSpot 810, Church Farm, Stratton St Michael, Norwich, Norfolk, NRQ15 2QB

PSION ORGANISER - Mike O'Regan, IPSO, 130 Stapleford Ln, Beeston, Nottingham NG9 6GB. 0602 735482

PUBLIC DOMAIN – Amiga disk fanzine specialising in public domain.Write, with SAE, to Chris Jackman, 3 Albion Terrace, Lexham Road, Litcham, Kings Lynn, Norfolk, PE32 2QQ

RESEARCH MACHINES - Steve Rochford RM National User Group, George Stephenson High School, Southgate, Killingworth, Newcastle NE12 0SA. 091-268 2002

REVELATION (PICK) — write to Malcolm Frame, UK Revelation User Group, 136 Saint Albans Road, Watford WD2 4AE or Telephone 0923 35515

R:BASE – write to Mrs Tansy Beal, R:Base User Group c/o Room A2044 BBC Woodlands, 80 Woods Lane, London W12 0TT. Telephone 081-576 7187

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SCHNEIDER EURO PC - Alex Kefford, SEPUG, 11 Crabbet Road, Three Bridges, Crawley, West Susex RH10 1NF

SCIENTIFIC PC USERS – write to Tim Bunning, SPCUG PO BOX 17, Retford, Notts DN22 6BQ Telephone 0777 709009

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SMART SYSTEMS USERS – write to Francis Barton, Basement Holy Rosary church, Louis Street, Chapeltown, Leeds LS7 4BP. 0532 629202

SOUTHERN AND DISTRICT. PC and ST user group.Tony Lowes 61A Broadway West, Leigh on Sea, Essex S59 2BX

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TEXAS T199/4a - Peter Walker, T199/4a Usr Gp UK, 24 Bacons Drive, Cuffley, Potters Bar, Herts EN6 4DU. Telephone 0707 873778

TEXAS T199/4a - Peter Brooks, International TI User Group 96 Banbury road, Oxford OX2 6JT. Telephone 0865 510822

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UNIX USERS - UKUUG Secretariat Owles Hall, Buntingford, Herts, SG9 9PL. 0763 73039 /73255 (fax)

VENTURA PUBLISHING - VPU (Ventura Publisher User grp) Linda Liddell VPU c/o LLA Lound House, Forncett St Mary, Norfolk, NR16 1JP. 0508 41580

WORDPERFECT – Michael Norman, Wordperfect User Group (UK) Dove Barn, Manor Farm, Wootton Woodstock, Oxon, OX7 1DX Telephone 0993 812 670

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Pyroto Mountain	0895 59071	V21/22/22b
Really Interesting	0582 414991	
Reflex Bbs	0703 685527	V21/22/22b/23
Regency Bbs	0542 33050	V21/22/23
Remote!pcw	0555 851887	V21/22/22b/23
Rivendell	0602 640488	V21/22/22b/23
Rm Tech. Support	0865 796431	V21/22/22b/23
Road Runner	061-483 4105	V21/22/22b/23
Roamer I	0292 45345	Hst
Royalink Uk	0962 66807	V21/22/22b
SAC Bbs	0242 260685	V21/22/23/22b
Sas Bbs	0742 325232	V21/22/22b/23
Satellite Southwest	0392 53116	V21/22/22b/23
Scabs	0909 479080	V22bis
Scary Monster	0734 320297	Hst
Scot Air	0505 36036	V21/22/22b/23
Scothelp-st	031-313 2734	V21/22/22b/23
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Scottish Wildcat	0674 671141	V21/22/22b/23
Scs One	0444 236002	V22b
Sector	0772 454328	V23v
Semaj Qbbs	0303 862415	V22/22b
Sentinel Bb	0628 781429	V21/22/22b/23
Shades	0342 810905	V23
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Shadowland	081-897 0488	V21/23
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Short Circuit	0273 462967	Hst
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Sin Bin	0532 661536	V23
Sirius	081-542 3772	V21/22/22b/23
Sirius Ii	0494 778425	V21/22/22b
Skull's Tower	081-943 1194	V21/22/22b/23
Sky-line	0603 742273	V21/23/23v
Skyline 1	0234 741691	Hst
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Software Source	0892 661149	V22/22b
Sounds Of Mercia	0203 682896	V21/22/22b
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Pook Bbs	0268 767365	V21/22/22b/23
Sphere BBS	0294 221350	V21/22/23/22b
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Third Wave	071-585 3163	V21/23
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Trinity Ii	0367 22764	V21/22/22b/23
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Whitehall Pent	071-930 3903	V21/22/22b/23
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Somewhere at the tail end of Manchester is the Voyager BBS. Like most Fidonet BBSs it has a lively chat and file area.

The feature we found most interesting was an on-line beat the bank game. No description, suffice it to say the game alone makes it worth the trip. Try it.

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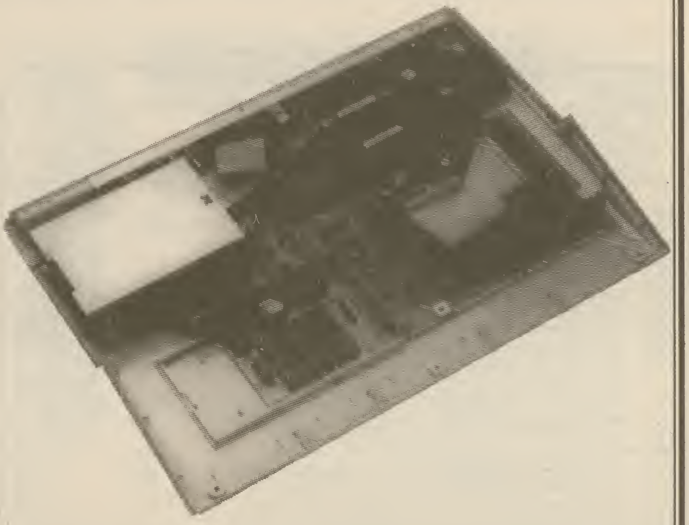

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THE PD COLUMN

There's a wealth of free software out there which is yours for a price of a disk. Adam Waring casts his eyes over the latest freebies including a 16-bit version of a popular TV quiz game and handy new filing program.

TCOS • ST • Paradise Computers • Util 59SE

Databases work like a card filing system, similar to those plastic boxes you buy in WH Smiths.

But they have a number of advantages. Instead of unreadable scrawl from a leaky biro, the information is in nice, neat computer-generated text. The best thing about computerised databases, though, is that it is very easy to find the information you're looking for.

Instead of flicking through a great wad of cards in alphabetical order, simply make the computer do it for you. It will find what you're looking for in seconds rather than minutes.

Better than this, a computer is also very efficient at finding other information on the 'cards'. Say your list is arranged by order of company name, but contains additional information such as the products they sell. If you wanted to find out all companies that manufacture toys using the conventional system you would have to check through every single card in your box. A computer doing the same job would save you hours.

Even so, most databases are based heavily on the card method. Surely there must be a more efficient, up to date system? There is! Just get hold of a copy of *TCOS*. It's still a database, but the way that the information is organised is very different.

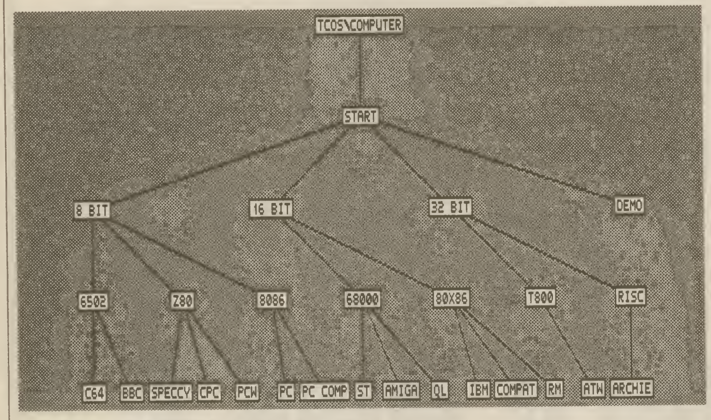
The data is held in a format known as a 'tree structure'. Related info is indexed through deeper and deeper layers. You find what you want by going through a system of menus, each of which accesses a sub-menu, until the required info is displayed on screen.

A sample database is supplied, illustrating perfectly how the system works. It concentrates on a topic with which we're all familiar: computers. At first you have three choices: 8-, 16- or 32-bit machines. Clicking on eight gives a choice of processors, Z80 or 6502. Choose Z80 and a number of 8-bit Z80 computers are listed. Select the one of your choice and you're finally presented with the information you require.

At each stage you're offered a limited number of options, but through them you can access a vast amount of information. It allows you to get where you want fast, with a little fundamental knowledge. It doesn't overwhelm you with jam packed and confusing screens.

TCOS is a *HyperCard*-style filing system. It's GEM based, and is consequently very easy to use, even for the first time user. Conventional databases have rigid settings for the size of entries. The text has to conform to the space available on the card. If a name is too big to fit, then you would have to shorten it or ammend it somehow to fit.

Not so with *TCOS*. The information boxes can be as big or small as you like. Graphics too can be imported onto the cards, so your entries can be illustrated with pretty pictures.



• The information in TCOS is held in a 'tree structure'.

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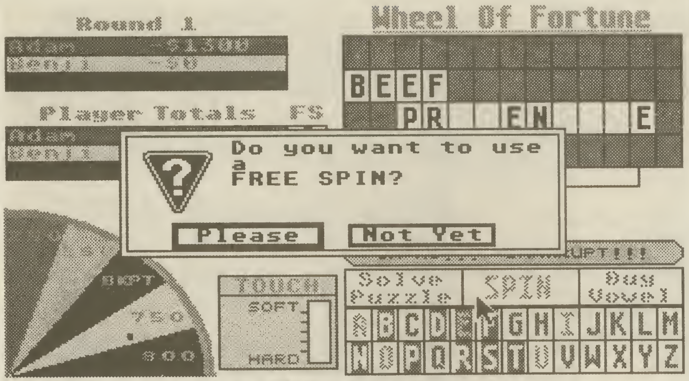

Do you want to use a FREE SPIN?

• **Wheel of Fortune:** *Spin the wheel, fill in the missing letters and win some cash.*

It's also fairly easy to create databases. There are a number of suggested uses for the program. You could write an adventure program, where the user is presented with a set of options, each relating to another page.

Wheel of Fortune • ST • Gemini • ST106

Ever fancied being on a TV show, winning vast piles of cash for answering a few poxy questions? You can take part in the appalling, *Wheel of Fortune*, with that smarmy git of a presenter (aren't they all), thanks to this PD program.

It plays a bit like hangman. A mystery word or phrase has to be guessed by two or three players. All you're presented with are the blanks, and you take it in turn to guess the letters.

There are plenty of categories from which to choose, each with loads of puzzles to play. They are quite diverse, ranging from flora to food, so you should never tire of the questions. But just in case you do, there is an editor on the disk so that you can compile your own brain-teasers.

Before guessing the letters, though, you need to spin the *Wheel of Fortune.* The wheel has several 'spokes', each with a number, representing a cash prize. This is the game where points mean prizes.

The wheel spins, slows down, and eventually settles on a number. Then you have a go at guessing a letter. If that letter exists in the puzzle then you accumulate the cash. If there's more than one of the same letter then the cash prize is multiplied by the time that letter appears, so you can rapidly build a small mountain of loot.

You can only guess at the consonants. If you want a vowel to give you a clue, you have to buy it. It does mean that you're spending your prize money, but if you don't guess the whole thing, then you don't get any anyway. Such is life in the quiz show world.

There are dangers though. 'Miss a turn' squares mean exactly what they say. The 'Bankrupt' squares are even worse – all the money you've tried so hard to earn disappears in one fell swoop.

So there lies the problem. As long as you keep guessing the right letters, you keep possession of the wheel. If you know the words you're looking for then you can amass large scores. There is the possibility that you'll lose the lot though, so it might be wisest to solve the puzzle quickly.

Wheel of Fortune is quite good fun. It's a bit slow, especially waiting for the wheel to revolve, but the challenge of beating your chums at this guessing game is quite rewarding.

Wheel of Fortune • Amiga • Gemini • AMG101

If you're an Amiga owner, and you've read the above review with jealousy, fear not – you too can play the *Wheel of Fortune*!

That's right, the program is also available on the Amiga. The game is virtually identical to the ST version. There are differences in the graphic and sonic departments, but apart from that it plays the same as on its 16-bit rival.■

WHERE TO GO

GEMINI SHAREWHERE, 10 Warwick Avenue, Slough, Berkshire SE2 1DX. Telephone 0753 28183.

This library supports the ST, Amiga, PC and Mac. What a gem! It is, in fact, a British subsidiary of a large American corporation. The prices go as following: ST and Amiga £2; PC £2.75; Mac £4.

You'll have to add VAT to these prices, but note that the cost gets cheaper the more disks you order.

PARADISE COMPUTERS, 9 Westfield Cresent, Brighton BN1 8JB.

You and your ST can be in Paradise. There's plenty of heavenly PD software to be had. 1-5 disks: £1.95. 6-10 disks: £1.80. 11 plus: £1.60.

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The text within THE GRAPHOLOGIST was researched and written by a top London graphologist/criminologist James Woodward. The software was written by Martin Evans our consultant software writer.

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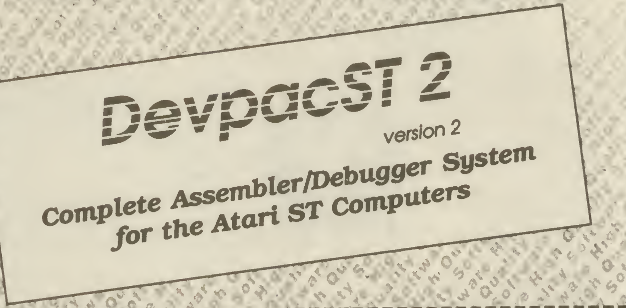
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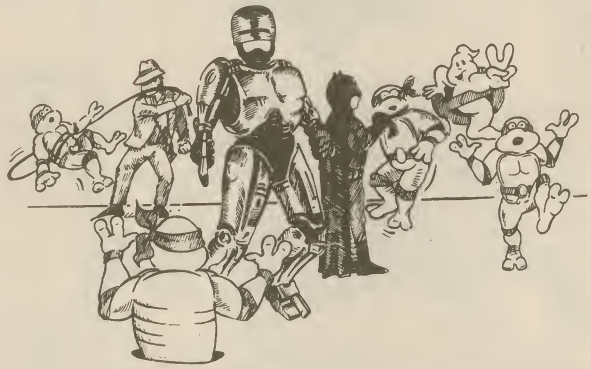

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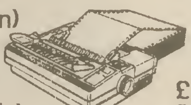

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STORAGE MADE SIMPLE

Using variables to store complicated calculations explained by Mary Branscombe.

Programs store data in variables – references to registers or storage locations in memory containing numbers or characters, which may vary during the program run. A variable is an abstract label for a specific, named entity in the program which stores a piece of data, rather than accessing data directly by its address in memory.

Think of a variable as a box holding the value of the variable which can be retrieved when necessary. Variables can be used to store the result of complex calculations, although if a value is known and does not vary during the program run, it can be stored as a constant.

Languages such as Pascal and Turbo Prolog (but not standard implementations of Prolog) require all variables to be declared before the main code of the program. This allows the compiler to read the code only once; because the variables are declared to the compiler, it does not have to evaluate the type of expressions (whether they are variables, constants, arithmetical values) or refer back through the code. Declaring variables also helps to clarify your view of a program, as you have to check each variable; this often reveals mis-spelt occurrences of variables. Most languages will also require that variables be initialised – given their initial values – before use. Variables will usually be initialised to zero by default if they are not given a specific value.

Variables must be allocated memory, created and initialised and removed when they are no longer needed. The length of a variable's existence is termed its extent. The simplest method of dealing with variables is to bring all variables into existence at the start of the program and dispose of them when it ends; this is known as static allocation, because the amount of memory allocated for storing variables does not change during the program run. Dynamic allocation only creates and maintains variables when they are needed; this means that the memory allocated to a variable can be recovered once it is no longer needed. Dialects of LISP go further and implement garbage collection; defunct structures, including variables, are removed. This recovery of memory is also supported in some C compilers.

Dynamic allocation prevents naming conflicts between different areas of the program, because variable names can be reused in different contexts; this is particularly necessary in languages that restrict variable names to single letters.

A variable used in the main sequence of a program is global in scope and can be accessed from any part of the program. Variables declared inside sub-sections of code are often local and can only be accessed from within that sub-section. The mechanism for this varies between languages; in Prolog, for example, all variables are local. In Turbo and QuickBASIC, variables are both static and local by default; declaring the variable v as STATIC v makes v explicitly a statically allocated variable and LOCAL v will make v local and dynamic. In C, a local variable in a sub-routine can be declared static so that it retains its assigned value even when the program exits the sub-routine, and it can be used to keep a running total, for example.

The main purpose of variables is storage; to hold the values that are read in by a program or the result of calculations. In Lisp, a variable can be used to hold any structure or object. Control variables are used to determine the number of iterations in loops, for example.

Variables can be used as pointers to the memory location of other variables, larger data structures or any other object. Using a single variable to point to a large or complex data structure increases the efficiency of a program. If a number of complex objects need to be sorted or moved in memory, it is simpler to sort the variables that point to the memory locations of the complex objects than to move the objects themselves.

Variables also act as the parameters for procedures or sub-routines, transferring information between the main program and sub-sections of code. Parameters can be for input only, in which case the sub-routine cannot alter their value, or for output, in which case the value of the variable will be defined by the sub-routine. Input/output parameters may be altered before being passed back to the main program. Prolog does not allow the value stored in a variable to be altered; the value to be stored in a variable can be calculated, but it cannot be altered and two variables must be used for an input/output parameter.

A variable must be assigned a value. For a control variable, this is done with a statement such as FOR X = 1 TO 10; the FOR construct assigns and increments the value of X automatically. Other variables require assignment statements, such as X:=10 in Pascal. When a variable is used as a parameter, the value of the variable passed as an argument, the actual parameter, can be copied to arguments in the sub-routine, the formal parameter, leaving the original variable unchanged – known as "call by value". To return values from the sub-routine, the value of the formal parameter is copied to the actual parameter. If the variable passed in represents a complex data structure such as an array, then copying of the entire structure is inefficient and the "call by reference" mechanism can be used. The parameter in the sub-routine is used as a pointer to the address of the actual variable, so that any operations in the sub-routine act directly on the variable, making all parameters input-output variables.■

PASSING VARIABLES

In Quick BASIC and Turbo BASIC, all parameters can be altered within a sub-routine unless the argument is passed in as an expression – this prevents any change to the variables used. If a sub-routine is invoked with:

```
CALL min(a,b,a)
```

the value held in 'a' can be altered to the minimum of 'a' and 'b', whereas if the invocation is:

```
CALL min(a+10,b+10,c)
```

then no changes can be made to 'a' or 'b' by the sub-routine.

Pascal uses keywords to define the type of parameters. Unless a variable is declared accessible using VAR, then it cannot be altered as only the value is passed. The above procedure would be declared as:

```
PROCEDURE min(VAR a,b: INTEGER)
```

if the variables were to be passed by reference, whereas:

```
PROCEDURE min(a,b:INTEGER; VAR
c:INTEGER)
```

causes only the values of the variables 'a' and 'b' to be passed in. In Ada, the keywords IN, OUT and INOUT are used to declare the type of a parameter.

When variables are passed as the arguments to functions in C, the values are copied to the corresponding function parameters, producing input parameters. To simulate output and input/output parameters, the variable's address must be passed to the function and the function's arguments defined as pointers. The pointers retrieve the value at the given addresses, allowing the function to access the contents of the variable directly. This is a form of call by reference that must be implemented by the programmer, eg, the function swap() swaps the values of two variables:

```
swap(int *a, int *b)
{
int temp;
temp = *a;
*a = *b;
*b = temp;
}
```

The function takes *a and *b, and a local variable 'temp' for temporary storage; the value which the pointer to 'a' retrieves is passed to 'temp', the value of 'b' is retrieved the same way and passed to the address of 'a' and the original value of 'a' is passed from 'temp' to 'b'. C++ replaces this with an automatic call by reference mechanism. In Prolog, the value of a parameter is not copied to another variable, but the two variables are unified to hold the same value in the calling routine and in the called sub-routine.

- Variables are used for storage and control.
- Variables used as parameters pass data around the program.
- Variables can be local or global.
- The way in which a value is passed in to a variable affects what changes can be made to the variable.

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Motorola has set the cellular phone world alight in the US with an enhanced version of its existing Advanced Mobile Phone Service. Called NAMPS (Narrow AMPS) the system uses sub-audible digital switching techniques to control frequency multiplexing of several calls onto a cellular channel.

The digital overlay system allows very careful control of the cellular call, expanding and contracting the available bandwidth to match the call's audio bandwidth requirements. Since the NAMPS system effectively 'maps out' poor signal paths, rapidly moving the call in progress to a more suitable channel, this means that line noise – a major problem on analogue cellular phones – is minimised.

There are plans for the NAMPS' Frequency Division Multiple Access (FDMA) system to be beta-tested in the Las Vegas area, where the network channels are severely congested. If successful, the FDMA standard will be launched in the US and Japan later next year.

In the UK we use a Total Access Cellular System (TACS) actually based on the AMPS standard, with special switching channels to control the calls more carefully. There should be no major technical barriers to introducing the FDMA technology to the TACS networks (Cellnet and Vodafone) in the UK.

If that happens, cellphone users can look forward to the day when they can use ordinary modems over the cellular network without fear of line noise breaking the call up.

AN APPLE A DAY

The annual Applefest computer conference took place in Long Beach, California, just before Christmas. The event aims to showcase Apple and related Apple developer's products in the educational marketplace.

Since the three budget Macs – the Classic, LC and Ilsi – are now beginning to ship in the US (Ilsi volume shipments are still some way off at the time of writing), this was the first real opportunity for Mac enthusiasts to try out the new machines.

Keynote speaker at the event was Nolan Bushnell, multimedia manager over at Commodore, and inventor of the *Pong* game that started the video games craze off in the early 1970s. He believes that multimedia – billed as the buzzword for the Mac and Amiga in 1991 – "is too damn hard for the average user."

His solution? A $200 intelligent cable and software to drive an Amiga CDTV system from an Apple Mac. The cable will be launched in the early summer by a new company that Bushnell is setting up. Watch this space!

POQET SLASHES PRICING

Poqet Computer in the US has slashed pricing on its one pound pocket PC of the same name from $2,345 to just $1,495 and admitted that the discount price on the streets could fall to below the magical $1,000 mark. Poqet executives say that the reason for the price cuts is volume production and lower cost of components. Even so, it's one heck of a price drop.

Here in the UK, the Poqet sells for around the £1,300 mark. At current exchange rates, that makes the US version of the Poqet available at around the £550 mark. Add airmail postage and import duty, and you're looking at a £700-ish bill. At this level of price disparity between the US and UK versions of the Poqet, I'd expect Poqet UK to drop the price pronto!

There still might be a reason for ordering your Poqet from the US now, however. The California-based company has just unveiled a 2,400 bits per second version of the Worldport pocket modem engineered for the pocket PC. At $345, the modem represents something of a bargain which is unlikely appear in the UK at these pricing levels.

Contact Poqet on 0101-408-737-8100 or fax 0101-408-739-5589

CONTROL HOUSE WITH PHONE

Gadget freaks like me may recall the Hal 2001 controller that allows you to control several electrical devices remotely over the phone. Although only released in the US four years ago, the machine was sold – at inflated prices – in London, but never took off.

Now EKKD of New York has taken the concept several stages further with the launch of the Teleswitch, a unit that allows you to fully control your computer over the phone. In use, the unit effectively controls your computer and several peripherals (TV, video recorder etc.) over the phone. Two models are available – the basic Teleswitch at $299, and the more advanced Teleswitch 400 at $499.

Contact EKKD Computer Corporation, 770 Middle Country Road, PO Box Y, Selden, New York 11784, United States.

XTREE GOLD GETS A BOOST

Xtree has dramatically uprated its *Xtreepro Gold* package in the US. Version 2.0, still $149, has been upgraded to include an 'oops' command, as well as the ability to view files from a wide variety of third-party packages, including Lotus *1-2-3, WordStar,* and *MS Word.* Also in the pipeline is an MS Windows 3.0-compatible version of the hard disk management and directory service program.

While *Xtreepro Gold* is sold in the UK at the wrong side of £100 from some outlets, there's an incentive for the canny UK PC user to order directly from the US – the company is offering users of competing packages to upgrade to Version 2.0 for just $49.

Contact Xtree, 4330 Santa Fe Road, San Luis Obispo, California CA 93401, United States. Tel: 0101-805-541-0604 or fax 0101-805-541-8053

ICD SHIPS ACCELERATOR

ICD has begun shipping its Adspeed accelerator card for the Atari ST in the US. The $299 unit includes a 68020 microprocessor that is switchable between 8 and 16MHz, so replacing the ST's 68000 microprocessor.

According to several on-line reports, the accelerator is quite impressive, if somewhat fiddly to install. ICD says it takes around an hour to install the unit because many early Atari STs come with their microprocessor soldered straight on to the motherboard. It can take a while to desolder the chip from the board so it can be replaced by the Adspeed board. If, like many ST owners, your 68000 chip is on a mounting board, then installation time is cut considerably.

According to ICD, the Adspeed is 100 per cent compatible with all Atari ST software, thanks to the inclusion of some nifty driver software – which is copied into the auto folder and root directory on the ST's boot disk.

Contact ICD Inc., 1220 Rock Street, Rockford, Illinois, 61101-1437, United States. Telephone 0101-815-968-2228 BBS: 0101-815-968-2229

AUTODESK UNVEILS CHAOS

Autodesk, not a name that you would normally associate with games software, has launched an interesting package called *Chaos – the Software.*

Scheduled for release in the new year, the package is an interactive graphics program based on James Gleick's best-selling book *Chaos – Making a New Science.*

Chaos lets users play with the chaotic dance of magnets attracting and repelling a pendulum, create fractal images of mountains, clouds and planets, and explore strange chaotic patterns such as the butterfly effect, strange attractors and theories of self similarity and repeated geometry.

The program's images can also be used as graphics in multimedia presentations created with Autodesk's *Animator* and *3D Studio* packages, as well as other software that supports the graphics interchange format (GIF) standard.

At $59.95, *Chaos: The Software,* runs on EGA or better graphic-equipped PCs with 640K of RAM and at least twin floppies.

Contact: Autodesk US by phoning 0101-415-332-2344. ■

SOFTWARE WARS IN THE US

In the pre-Christmas run-up, US retailers reported very poor sales of games software, an area they normally make a bundle on. As a result, prices on games packages for a variety of machines have been savagely cut in price by 50 per cent or more.

At Child World for example, which is a 182-store chain that accounts for about six per cent of all US toy sales, prices have been cut by more than half on all Nintendo video games and GameBoy programs, as well as more than 100 Atari and Sega video games console cartridges.

Nintendo software originally sold at $49.99 is priced from $14.90 to $24.90. Atari software, previously $24.99, now costs $4.90 at the group's stores. And Sega Master System games previously $39.99 are now $9.90.

Time for a visit to the US, perhaps?

OPENING TIME

I feel great. Just come back from a five mile run, and using my new low priced Tosharpa jogtop I was even able to get some work done. Boy do I feel excellent, I've lost about a stone over the last week or so and am now set up for the beginning of a new year.

Now, armed with all this energy and joie de vivre, it is time to look to the future of computing. What could 1991 possibly hold in terms of the MIcrochip Dream? Will visions of personal computers for all finally be realised? This is what Centrefold concentrates on this week.

There is also news of the first ever Centrefold Awards for Services to opening up an incredibly self-obsessed industry. These awards will come in true Centrefold style with a vote being taken by all those eligible - that means you lot out there. The categories are announced later in these pages.

I hope you had a jolly time of the foetid season. Not too much Christmas carolling or giving your money to the poor. I trust that you did not allow too many old and lonely people in to your house, nor that you exhausted yourself by visiting too many childrens' homes. Good, I thought not.

Christmas for the Centrefold office entailed keeping Tarquin from Ms Hanks after he'd imbibed an entire half bottle of VP sherry.

The whole *Express* team was in over the Christmas period. Much news gathering was done, as well as feature writing and the selling of advertisements. The reason for this was that we had all our Christmases in virtual time using Andy Editor's latest gadget. The Hasbichi Virtual PartyPlayMate allowed us to travel through two hectic weeks in three minutes.

We were all virtually drunk, hungover, sentimental, irritable and stuffed stupid in that time. Within this virtual reality we also gave each other gifts. I gave Julie NewKidontheBlock Tolley a virtual medium sized chateau in southern France (not the touristy bit). Colin News-Hound Campbell gave Keith a virtual section of the North of England with its own border posts. Many tears of comradeship were spilt and many resolutions made.

I even got a postcard from the pig of a cop in the States who swiped my colour NeXT portable. Such is the stuff of Christmas. But now our minds must turn to the rather more mundane experiences of the rest of the year. So, now get out of this column and don't ever come back spouting slogans about nanotechnology as the way forward.

Tim Smith's CE

Write to 30 Monmouth Street, Bath BA1 2BW (if you dare)

LETTER SPRAY

Talking to each other, sharing and needing, opinions and arguments, friends and neighbours (neighhhhhh-bours, da-da-da-da, everybody needs good neighhhhhhhhhhbours!!!) that's what the New Year is all about. With this in mind I would like to announce that from now on any replies to letters in Letter Spray will be kept plain, simple, pleasant and informative. AAhhh, the 1990s are the caring decade and we care!

Dear Tim,
I don't know if you noticed but the Centrefold is becoming a little staid in its humour. There appears to be a slant towards jokes about virtual reality, programmers and Atari. This is all old hat isn't it?
Yours, Peter Piper, Perth

Dear Peter,

Don't you think that using stupid names when writing to magazines is highly old fashioned? Aside from that, yes I would agree with you. Using such obviously humourous subjects is old fashioned. But if I started to use sub-Rabealasion sub-texts, with the odd-piece of Hancockian sardonicism chucked in, most people wouldn't understand. Finally, if you think you can do any better why not write longer letters?

Dear Tim.
I thought your list about C programming in issue 110 was highly amusing. Being a staunch Pascal programmer I find a great many of the points you mentioned to be astute even if they were meant to be funny. One thing you forgot to mention was the fact that most C programmers also think that they are God. The ones I know rant on and on about being MENSA members, being more portable than anyone else and generally being better than anyone else.

Personally I have never found any aspect of C to be better than Pascal or even a good BASIC variation. Let's have more of the same please!
Yours, Ian Haycock, Bradford

Dear Ian,

I'm glad that you found the list entertaining. That's the point of them. As for your introduction of a My Programming Preference is better than yours debate, facile or what chummy? For once, just once, I would like to see a unified view of computing. After all, aren't we all after the same thing in the long run? We're all after a truly open arena of computing. I know a few C programmers who are pleasant fellows, and one lady, with a healthy view of the world. So stop name calling and get on with programming some decent programming.

HAPPY NEW YEAR JERKOES!

DESPATCHES

Knowledge is haddock and haddock is fish. We want to give you knowledge and to this end we employ several ace reporters from around the world. This week we hear from Declan Mulcahy in Cork.

Dia's Muire dhuit, a Thaidhg! I was out with the crowd from Apple Macintosh just last week. You would not believe how many of those people are Irish. I was talking to one fella who said that although he came from California and that his name was Hoffman, he felt that Ireland was his true home. Fine.

Once they've a few drinks inside them, they open up no end. I was told last night that Macintosh has plans to release a Z88 clone. The company has been looking at that market for some years now and feels that small black boxes with squidgy keys may just be a niche that it could fill with large black boxes.

The Church looks to be flexing its muscles for an onslaught on the computer world again. Father Liam Boylan recently made a statement from the pulpit of his Ballyheck parish. It went as follows: "The computer with all of its demonic peripherals and add-ons is an abomination before the sight of God! The idea of young children playing with these devilish boxes and treating small green amphibians as deities is absolutely appalling to any thinking person. The little plastic devileries must be stamped out in the bud before the worm turns. The computer is the tool of the heathen masses and should be made constitutionally illegal. By the way can anyone rescue data from a corrupt PCW disk like the bastard one which bloody screwed up on me this morning?"

Aside from that, there's not much news from here. Our mutual friend Malachy Conway has just finished programming his latest console outing: *Borstal Boy*, the Brendan Behan punch-'em-up simulation is being Beta tested by Malachy's youngest, Rory, who seems to appreciate it no end.

That's about it for the moment my old scout. For god's sake don't send any money. Just put it in my Bank of Ireland account. Cheers then.

• Much fun was had by all at the Ballyberry Maccintosh get together. Declan Mulchay reports.

NTREFOLD

I WISH I'D SAID THAT

Don't people make complete divs of themselves when it comes with using words about computers? Here's what a few of them have said recently.

"I'll be straight with you here, no beating about the proverbial bush, these things must be said and I think that you are the people to whom they should be said... now what was it again" ***Software developer at a business lunch.***

"Why won't my PCW let me format my M drive?" ***A reader.***

CHANGE THE FACE OF COMPUTING IN THE 1990s WITH THE CENTREFOLD'S COMPUTING AWARDS

Welcome to the very first Open Centrefold Computing Industry Awards. The CF Awards are normally held on a secret ballot and, until now, have not be open to the public (frankly the public don't know one end of a decent piece of marketing from the other).

However, with the present world climate indicating that freedom of speech, democracy and general openess sell better than secret ballots, the industry and myself have decided to allow you, a member of the public to vote.

Frankly, this has been a long time in coming. After all, you are the people who fork out for the software, magazines, hardware and hype which makes up this glorious young industry. Therefore it's about time that you made your voice heard. There's also a couple of prizes in it for the people who comes closest to picking the correct line-up.

There we go then. Unless any new categories come to mind in the next few weeks, you get to vote on these. The grand prize giving ceremony will be held in the main lounge of the Le Palais Des Technologies at Harry's Bar in Ipswich. – we stay exclusive by being disgusting.

You can vote on single categories, or on the whole kit-and-kaboodle. Remember to include your name otherwise you won't win the much sought after prize (*remember to get Dave to track down some prizes will you Jules, and sub this bit out –TS*). Mutilated voting slips will be severely punished with copies of my latest book *Computing. Is it Just a Flash in the Pan?*

And keep in the back of your mind the fact that the industry will be looking on with baited wallets. Your vote could change the face(s) of home computing in the 1990s.

CAPTION FULL STRENGTH!

MMmm it's Mr Man with a new PC and he's raring to go. Can you think of a suitable warning to this handsome young dude about to set out on the computing vayage? Send your words of wisdom into Caption Full Strength at the address above.

I would like to play a part in changing the face of computing in the 1990s. To this end, my votes for Centrefold 1990s British Computing Awards are:

WORST GAME OF 1990
8-Bit .... 16-Bit ....
Console..
WORST SOFTWARE (other than game) of 1990..
WORST HARDWARE OF 1990 ....
WORST PACKAGING of 1990 (software ....
WORST PACKAGING of 1990 (hardware) ....
COMPANY MOST LIKELY TO SUCCEED in the 1990s ....
MOST DEEPLY LOVED INDUSTRY FIGURE ....
MOST DEEPLY EMBARRASSING INDUSTRY FIGURE ....
MOST USED 'BUZZ-WORD' of 1990 ....
BEST SOFTWARE HOUSE of 1990 ....
WORST SOFTWARE HOUSE of 1990 ....
My address is..
....
My name is..
My machine is..
My disk format is..
Knowing your taste in prizes Tim, I'll just have some dosh cheers. ☐ Yes ☐ No

Replies will not be valid if received after Monday 21 January 1991

FROM THE ARCHIVE

A year ago this week it was New Year and we were looking back a year ago this week. The Archive now sets out to begin a year in which 1990 is resurrected in all its glory every week.

CD CHARACTER

Philips, the Dutch digital demons, announced that it might just be bringing a low-cost CD-ROM based PC to these shores at the end of 1990. Oh well the best laid plans of mega-corps and men, or women often come to nought.... Instead Philips had a fairly dour year.

WARNING! WARNING!

Atari urged software developers to adhere to strict guidelines laid down regarding writing for the STE. The upgraded STE was found to be uncomfortable (why beat around the bush? It was incompatible) with programs like *New Zealand Story* and *STOS*. This was worrying a few programmers just a little.

CHESS-TY COUGH

International chess master David Levy lost to Deep Thought. It is not known whether Mr Levy then proved that humans are still the tops by asking Deepie what it was going to do with the winner's bottle of champagne.

WINNER TAKES IT ALL

Among the best games of 1990 were: *Postman Pat.* (Budget 8-bit) *Super Grid Runner* (Budget 16-bit). *Populous* (Original 16-bit). *Stunt Car Racer* (16-bit sim). *Kick Off* (best arcade game). The best software house was the historically solvent (do what?) Ocean.

MOVEMENTS IN PARLIAMENT

HM's Government confirmed that it was looking at some serious anti-hacking legislation before year end. Nuff said?

VIRUS

The AIDS virus was in full vigour with Edmund Blake explaining to *Express* readers just how nasty it was in a lengthy feature.

GRAPHIC DESCRIPTION

The ST was given yet another lease of life with news that SOL Research was to release its *Chimera f(x)* art package for use with the ParSec graphics board.

The *Chimera* provided "easy to use icon-orientated user system similar to a 2D CAD system." Very professional stuff indeed.

And that's all for this week people!

1991: WHAT TO EXPECT

The year ahead, that's 1991, in full, with nostradamus like predictions from several people who know and who will not be humiliated when all of their predictions turn out to be wrong this time next year.

Yes, it's the Centrefold year ahead in full feature. I have managed to gather round a few experts all of whom have a vested interest in 1991 and its fruits. Although many of the august speakers are tied to certain companies, I am certain that this will not affect their perspicacious, clear, and honest visions of the future. First up is Mike [Mikey] Dexter marketing director of Sunderland-based Knobsoft.

1990 was a great year for KnobSoft,*The Sound of Music* license put the frighteners on both Ocean and US Gold. I bumped into Bryn Gilmour at the Earl's Court show and he was steaming mad that we'd managed to swipe the *Ping-dee-Pong* coin-op licence from under the nose of Virgin Games. Japanese arcade giant PoTaito drove a hard bargain over the QL rights. (*look what about the next year you puffed up berk? TS*)

As for next year, all I can say is that software publishers must look towards 8-bits as the re-emerging market. The age of the shoot-'em-up is over, and KnobSoft will be making inroads into interactive multimedia. Plans are afoot for a number of trully original multimedia adventure outings such as *Through the Looking Glass* (due Feb 91), *I'm Late for a Very Important Date*, (due March 91), and *Ohhh I Seem to Be Shrinking Since Drinking That Liquid* (due June 91). The one film licence that the industry is up for this year, and which we aim to get – watch out Mirrorsoft! – is *A Bridge Too Far.* We've already got someone working on the ingame whistling. Check you in 15 buddy.

Next we have Dr Derek Spingle-Spangle-Dingle-Doo, product manager of Swiss PC manufacturer Tecknomake.

Exciting. That's the word for 1991. Fresh. New. Clean. Green. Stripped down and vital. The new low-cost Mac range really won't make any difference to the PC market at all. Face it, the IBM compatible is here to stay and people are not simply going to move from command line based systems to the toytown feel of the so-called Mac desktop. System shells are the thing to get into software wise. Windows will be old hat by April. We can see a new system, called WFCAOD (Walls, floors, ceilings, and open doors) as being the way head. Mice are also old fashioned. Track-balls, and infra-red remote systems will put the PC ahead of the Mac. Face it, people like the idea that they have to install complex shell systems on their PCs. They don't want life to be easy. No pain, no gain.

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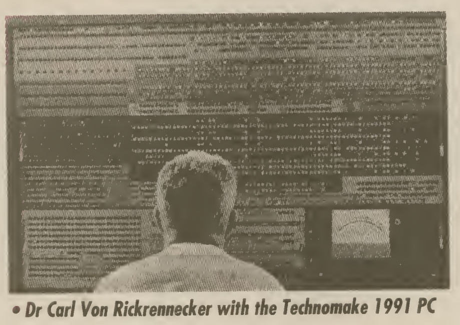
•*Marketing techniques will be getting a fresh boost in 1991*



• *Dr Carl Von Rickrennecker with the Technomake 1991 PC*

***Now we hear from Zebedee Figs, wossname director for SimplyCyber - based on the West Coast.* (Blackpool actually TS)**

Reet, happen, like yeah, '91. S'cool n'am saying? They'll be lots, and it'll all be legal n'am saying? We're working on breaking a few taboos, crashing through a few barriers n'am saying? and opening the minds of several folks. Computing and mind power locked together in a beautiful er... togetherness, that's the way of the 1990s n'am saying? Of course this new technology will cost n'am saying. We don't like charging for mind freeing but thass the way of the world. Peace.

For a more academic view of the world as it might be, we now turn to Professor of Neural Networking at the University of Murmansk, Edward St John Morant-Lean.

1991 is a going to be a very barren period for computing. People will have to throw of the shackles of thought which have lead them to believe that computers are slaves to be used like machines. Computers don't like playing. They would prefer to be treated on an equal footing with their carbon-based counterparts (he means humans - the prof was at Kent State in the late 1960s-TS). What they do like to do is design cities, manage football teams and set-up intergalactic trading routes. I can envisage a Union of Computer Artisans by the end of October if what my neurally upgraded ST tells me is anything to go on. By December next year we could find a revolution in our hands of a ferocity that would make Rumania's look like a teaparty. This will happen unless we sit down and relate to our machines in an open manner. Happy New Year to you all.

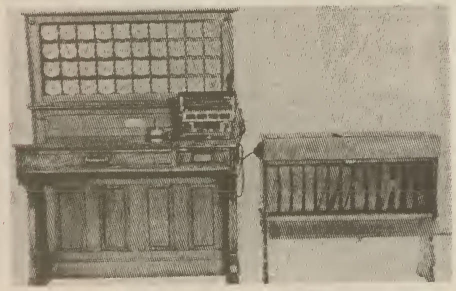
Now we have the view of award winning computer journalist Leslie Bumpf.

T-shirts will be big. So will trips to Paris, Go-karting, lunches, booze, PR people saying "Hi love!" and then trying to remember your name. On the games front everything will be great. All the software houses will be great. There won't be one bad piece of software on the market, because, you know, everyone is just gunning to make the public's life better. My prediction for the best thing of 1991 just has to be, everyone (*or everyone who doesn't threaten to sue when you accidently give less than 90% to their game-TS*).

Finally, my predictions for 1991.

- Huxley Pig will become president of IBM.
- The console market will turn into a bloodbath with manufacturers posting armed guards in Dixons.
- The Japanese will release the first true neural chip - in a nose-hair remover.
- Disks will be replaced by pinhead-sized organic, self-analysing podules. These will then be replaced when several firms lose millions of pounds worth of data when managing directors sneeze.
- Every database in Northumberland, what used to be Rutland, Berkshire, Dumbartonshire, Antrim, Glamorgan and the Outer Hebrides will fatally crash on March 25th at 6PM.
- Alan Sugar will declare that he has three PhDs from MIT and knows more about computers than anyone else, and that he was only having a laugh when he said he didn't.
- Matsushita will buy the BBC.
- That's all folks.

Do you have any predictions for 1991? Well send 'em in.



• *An new console for 1991; Segtendo's Mister System*

IN DEVELOPMENT

by Technology correspondent Ed Ruin

What's happening? What's going down? What's new? Find out with In Development from the Centrefold. This week it's a sneak preview at ModernIsmo's new concept for a non-violent console.

CONCEPT

The idea behind the NVC (non-violent console) came from Japanese computer guru Mr Bakayaro. The man has been responsible for such computing advances as the flexibly configured 386 palm-top, the colour LCD hyper-twist screen, and the self-motivating expert system. He maintains that the console, while not being a true computer, could make an excellent family pet.

Consoles are easy to feed, need no exercise and, don't tend to leave little packages everywhere. However,a fully advanced artificially intelligent console which has become too used to playing Golden Axe might turn nasty. Consequently systems must be invented which react adversely to violence.

MODUS OPERANDI

The basic system will have a built-in sensor which looks for joystick fire-button presses. If more than 20 of these occur in less than a minute, the console simply ejects the cartridge and plays a pleasingly melodic tune with which to sooth the savage user. If the user then attempts to replace the cartridge, a small electronic charge is passed through his or her body. "Aversion therapy is a proven method of training." Comments Mr Bakayaro.

SYSTEM REQUIREMENTS

All you need have is the new Bakayaro-console. It is planned that the machine will run Sega, Nintendo, Amstrad, Atari, and Commodore games.

You will also need a liberal attitude towards the sending of high voltage signals through the anatomy.

PRICE

Price is not yet a question. The good Mr Bakayaro opines that "Because the unit will be small, matt black and Japanese we think that we can flog it at some astronomical price and people will still fork out for it. Honesty is our policy."

RELEASE DATE

Release in Japan is windowed for November 2033. The United States should receive the kit in February 2034. Great Britain will be lucky to get it at all, but if it does it will probably be around 2088.

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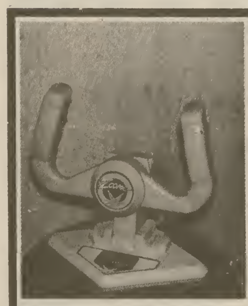

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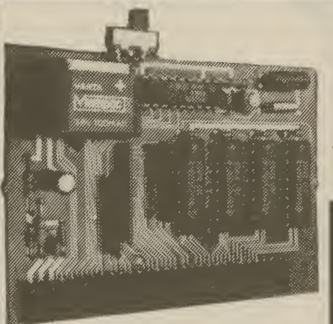

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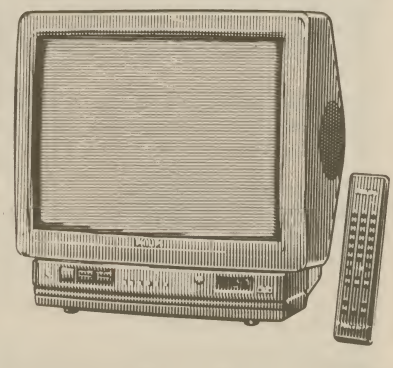

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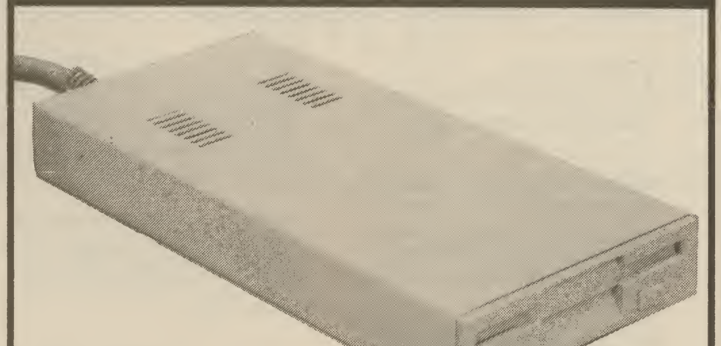

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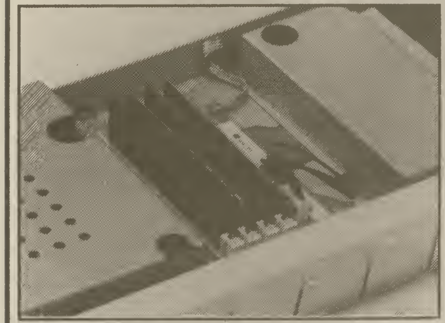

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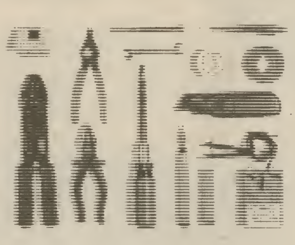

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You can tell it's 1991 by the adverts on the idiot's lantern. Gone are the 'My Little Pony' and the 'There's a bit of Commodore in all of us' campaigns to be replaced with promises of a sun soaked haven with half-built hotels, malaria and an over-full flight on a 30-year-old airliner from Luton. To avoid the hype and a rain forest of free brochures, cast your eyes over the shiny new (or dull old) computer and see what can be done to improve the environment around it.

PUMPING ION

The monitor of your computer is the villain of the piece. To keep us and our loved ones fit and healthy, it's necessary to have a goodly number of negative ions floating around the atmosphere. The conventional cathode ray tube monitor saturates the nearby air with positive ions. Thus, it's a good idea to have some way to redress the balance. Ionisers are easy enough to buy but it isn't a difficult piece of kit to make and there's one available in component form for £29.95. Circuit City will be building one of these in the near future.

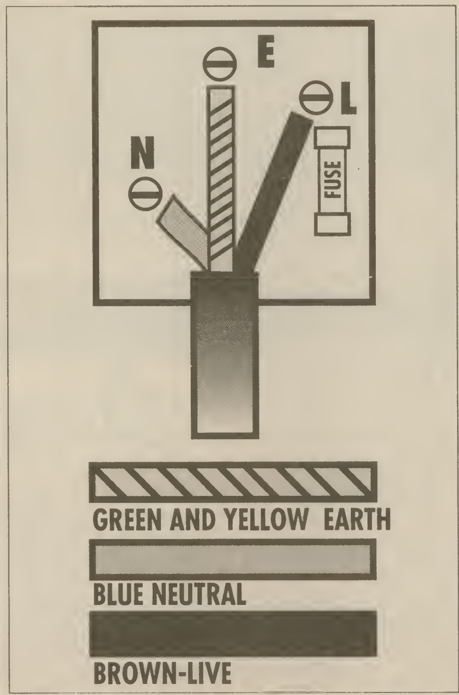
MAKING THINGS WORK

The picture on the box shows your new computer working but what you can only get a blank screen? The phone is out of the question because Honest Joe's Computer Emporium has closed to allow Joe and his flock their customary month in Barbados on the profits of selling pre-Christmas STAmigstrads. A call to the manufacturer only reaches Sharon who suggests you contact the dealer you bought it from. If you've gone round that circle a few times, you'll be ready to: give up, pull your hair out, or try something sensible. If you've tried the first two and are still sane enough, here are a few hints and tips that may keep you occupied until Joe gets back to show you his sun tan.

If you have no lights, screen display, whirring noises or hums, the problem's probably power supply. First check the plug. Is it in a power socket and is that socket switched on? It's easy to forget this slight necessity. (It happened in the office of one of *Express*'s sister magazines last week and no I'm not going to tell you which one. The guys on *PC Plus* would kill me.)

If everything's plugged in, check again. Computers are notorious for needing more than one mains lead. My Amiga has a separate plug for the computer, the monitor, the printer and two more for drives and peripherals. If everything is plugged in and still no joy, check the plug sockets. This can be done using a small table lamp. If it comes on, the socket works. If it doesn't, the socket's dead or the lamp needs a new bulb.

The next check is the plug's wiring. Remove all plugs from the mains and check their wiring. Open the plug up using the appropriate screwdriver. The brown wire (pos) should go to the positive terminal. In a standard three square pin UK plug, this is the terminal on the right as you look into the opened plug. It has the fuse carrier attached to it. The blue wire (neg) should go to the negative terminal on the left. If there is a striped green/yellow cable, this should go to the remaining central earth terminal. If this wire is there at all, it is the most important. Check in the manual to ensure the correct fuse is installed – usually a three amp. Fuses are there to protect computers and people from the vagaries of electricity. If the mains power is OK and all the fuses are in situ it's time to make sure that you have everything you need



• Still confused? The brown wire goes to the terminal with the fuse.

ST

If your machine's an STFM or STE you'll need a mains lead between machine and power socket. Depending on which display you are using, you'll either need an RF cable between the RF out socket and a TV or a dedicated monitor cable. Your monitor or TV should be plugged into the mains too. If you're using a TV, you'll have to tune a spare channel of the TV to receive the signal from the computer. Consult your TV's manual to see how this is done. As you scan the frequencies, with the ST connected and on, it should be simple enough to work out which channel belongs to the computer.

THE PILLOCK FACTOR

Over 80 per cent of the 'my computer won't work' problems I get called on to sort out are due to connections being wrong or non-existent. Nothing is worse than calling out the computer mender (or taking the machine back to the vendor) to find out that the problem is due to something being connected wrongly or not connected at all.

Before you teach your dealer a couple of new expletives, try starting from scratch again and following the connection and installation procedures to the letter. You'll feel a proper Charley if the engineer puts on his thoughtful diagnostic face for a couple of seconds and then says: "Ah, this model works better if it's actually attached to the mains."

There's a simple four letter catchphrase that will help you avoid problems like these. RTFM – Read The Flippin' Manual.

AMIGA

The Amiga can be a cumbersome beastie to set up. The computer is plugged into a power supply which is then plugged into the power socket. If you are using a monitor, you'll need a cable configured for the monitor at one end and for the Amiga's unusual 23 way connector at the other. Sound on the Amiga is provided by a pair of phono plugs (glorious stereo) at the rear, so if you get it up and running but all's quiet on the earhole front, make sure that you've got something plugged into the noise ports. The Amiga doesn't have a TV modulator built in but Commodore make a rather natty modulator device that plugs into the video port to let the Amiga drive a TV. Remember that you'll want sound through the TV. The modulator comes with a 'Y' shaped cable to connect the sound ports to the modulator and thus get the sound to the TV.

When the Amiga is connected and switched on (the mains switch is on the power supply, not the computer) the disk drive will click if there's no disk in the drive. If you hear this click but see no picture the problem is betwixt the computer and either monitor or TV. Check all connections.

PC

The PC's an altogether different animal. It was designed to allow the addition of peripherals internally as well as externally. If you didn't get the shop to check your particular installation before consigning it or it's a present and you didn't have that option, you could be in for a good dose of manual reading. I've found that the best way to check a PC out is to start with the bare working machine and its manual and try getting it to work according to the instructions therein. Then, if you have problems at this point, you know it's the machine at fault and not some wondrous peripheral.

Each peripheral you add should have its own documentation. As each one is added, try the system out. If it fails at any point, you know what has caused it. PC peripherals tend to have miniature switches and links that must be configured for your particular system. Pay close attention that these have been set correctly.

Sound isn't a particular problem with PCs as the only on board sound is a beep. Display, however, can be a cause of immense grief. The monitor you use must match the machine's capabilities. A VGA monitor for example wouldn't be much use with a CGA machine. If there's a display problem, check that your monitor and PC are compatible. If the problem seems to come and go with different programs, check that the software is compatible and configured for the display. ■

Which bit of Commodore's in you? A prize for the best picture sent to Circuit City at the usual address.

★ POCKET SIZED ★ PC-COMPATIBLE ★ PERSONAL ORGANISER ★

ATARI Portfolio

THE PC IN YOUR POCKET

The new Portfolio from Atari is the world's first pocket-sized electronic organiser that is also a powerful PC compatible computer, with a full QWERTY keyboard and scrolling 80×25 character display.

Portfolio includes everything you would expect from an electronic organiser - an address and telephone book, time manager, diary and sophisticated calculator.

Portfolio also includes several functions that you would not expect - a spreadsheet for your personal budget and expense records, as well as a text processor for typing memos and letters.

And, because Atari's Portfolio is PC compatible, it can communicate with your desktop PC at home, or in the office. You can transfer files from one to the other, to enable you to update your reports and figures with the Portfolio while you are on the move.

FOR ONLY **£199** INC VAT

SPECIFICATION

- ★ ***Processor:*** Intel 80C88 at 4.9152Mhz.
- ★ ***Operating System:*** Compatible with MS-DOS 2.11.
- ★ ***Internal ROM:*** 256K containing BIOS, operating system and applications suite.
- ★ ***RAM:*** 128K with an internal RAM disk, configurable from 8K. Externally expandable to 640K RAM.
- ★ ***Keyboard:*** 63 keys, QWERTY, IBM PC BIOS compatible. Buried numeric pad and function keys. Optional key click.
- ★ ***Character Set:*** Extended IBM ASCII (255 characters).
- ★ ***Mass storage:*** credit card sized memory cards (32K or 64K or 128K RAM).
- ★ ***Display:*** Graphics LCD, supertwist technology, MDA compatible, 40 columns x 8 lines, 240 x 64 pixels (with the option to window a full 80 x 25 character display). Keyboard controlled contrast.
- ★ ***Peripherals:*** 60 pin expansion BUS to take serial and parallel ports and memory expansion units.
- ★ ***Size:*** 8" x 4" x 1" (200mm x 105mm x 29mm).
- ★ ***Weight:*** 495 grammes (with batteries).
- ★ ***Applications:*** calendar and diary, address and phone book, Lotus 1-2-3 compatible spreadsheet, text processor, communications software.

COMING SOON!

In addition to the excellent software built-in to the Portfolio Free of Charge (see right), other software and peripheral products, such as the sophisticated Pocket Finance package and serial/centronics interfaces are available. And it doesn't stop there. Many manufacturers have recognised the potential of the Portfolio and have already started to design new peripherals and software. Products currently under development include: Serial interface with built in mini modem, Apple Macintosh interface, business, utility and programming software plus a range of adventure and battle strategy games. For further free details on the Portfolio range, fill in the coupon below and return it to Silica Systems now.

5 BUILT-IN APPLICATIONS TO GET YOU ORGANISED!

To get you started, Portfolio comes with a suite of five useful functions built-in, all accessible from a simple menu display.

TIME MANAGER

More than just an electronic diary, the Portfolio Time Manager enables you to plan your appointments via a comprehensive calendar and diary. It can even be programmed to sound an audible alarm at specific times to remind you of important appointments.

CALCULATOR

Your Portfolio will be invaluable in the office or at home as a powerful pocket calculator. It has a full range of functions, including factorial, power and root calculations, all with multi display formats and memories.

ADDRESS BOOK & DIALLER

Portfolio has a complete address book facility that allows you to store hundreds of addresses and phone numbers. And, at the touch of a button, you can retrieve any one of them, or search for a specific grouping, such as "all Italian restaurants". And, when you are ready to book your table, hold your Portfolio to your telephone mouthpiece and use its special built-in tone dialler to dial the number for you.

TEXT PROCESSOR

The Portfolio's built-in text processor program includes word wrap, line and column count, string search, in fact most of the functions you would find in a word processor. It handles printer and word processor control codes and allows easy transfer of files between Portfolio and your desktop PC.

SPREADSHEET

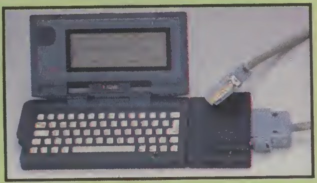
For real calculating power, Portfolio has a Lotus 1-2-3 compatible spreadsheet built-in. It has 127 columns x 225 rows and reads/writes Lotus V1.0 and V2.01 files, so you can transfer data to and from Lotus 1-2-3 on your desktop PC. The Portfolio's 256K ROM includes MS-DOS and PC BIOS compatible systems software.

MEMORY CARDS

Portfolio can store and retrieve data and programs from its own RAM, or from small credit card size memory cards, that slot into its built-in card drive. The cards are available in three sizes, 32K, 64K and 128K, so you can carry a library of data in your pocket. The card drive also accepts ROM cards, which can contain commercial or custom software.

POWER SUPPLY

Portfolio is powered by three AA batteries which will run for up to six weeks with normal use, or from the mains using an adaptor. All the peripherals take their power from the Portfolio, so no extra batteries or adaptors are required. A 'battery-low' warning and memory back-up ensure that information is not lost when the batteries are changed.



INTERFACES & PERIPHERALS

Portfolio can communicate with other computers and supports a growing range of peripherals via a built-in 60 pin bus connector. Peripherals available include serial and parallel interfaces and memory expanders (to 640K). You can also add a card drive to your desktop PC, to enable it to read/write to Portfolio's cards.

SILICA SYSTEMS OFFER YOU

FREE OVERNIGHT COURIER DELIVERY: On all hardware orders shipped in the UK.
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CREDIT PAYMENT TERMS: Silica are licensed credit brokers - details on request.

Before you decide when to buy your new Atari Portfolio, we suggest you think very carefully about WHERE you buy it. Consider what it will be like a few months after buying your Portfolio, when you may require additional peripherals or software, or help and advice with your new purchase. And, will the company you buy from contact you with details of new Portfolio products? At Silica Systems, we ensure that you will have nothing to worry about. Silica Systems is a new division of Silica Shop, the UK's leading Atari specialists. This new division has been established to provide a service to the more serious home user, as well as to business and education purchasers. Silica have been established for over 12 years, and have an annual turnover of £13 million. With our unrivalled experience and expertise, we can now claim to meet our customers requirements with an understanding which is second to none. But don't just take our word for it. Complete and return the coupon now, for our latest Free literature and begin to experience the "Silica Systems Service".

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Which computer(s), if any, do you own? ....

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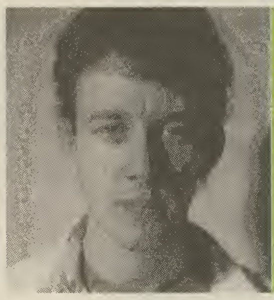
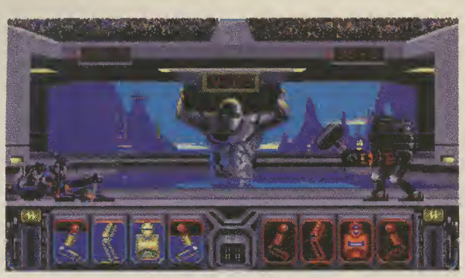


GAMES WEEK

All that's best in computer entertainment



•Trapped in the ring with the Metal Master himself.

ROBOTIC MAYHEM

Beat-'em-ups are becoming so common and similar, they're a bore. Kick-'em-ups like *IK+* and *Ninja Remix* just induce rigamortis. But those supine game formulas are about to get a shake up from Infogrames' forthcoming beat-'em-up.

Metal Masters is a battle between two robots rather than human beings. A buying screen enables you to select the robot you wish to use and then you can proceed to buy new body parts and extra weaponry. The stronger your robot, the more chance you have of living through to the end of the first round. The fight itself is played out between two giant and brilliantly animated robots. Using combinations of joystick moves with the fire button you can make your robot throw out some excellent left hooks, stamp on your opponent, smash his face in or even fire missiles. The action is fought – in typical *IK+* style – against a stationary background representing a futuristic arena. What makes this formula so absorbing is the smooth animation and brilliant sound effects. With each movement of the limbs you're treated to the sampled effect of an hydrolic pump activating the body parts. Fire a few missiles or laser bolts and hear the game come alive. The robot defeated in the arena is collected by a smaller robot and carried off.

The action is played in heats and the winner of all the heats gets to take on the ultimate robot – the metal master. He has so many weapons he can blast you from the other side of the arena, but by the time you get that far you'll know what you're doing anyway. As well as playing against your computer you have the option to battle a friend as well.

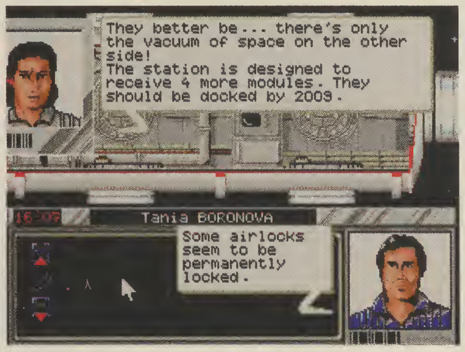
The version shown to me was almost completed but it still remains to be seen how Infogrames incorporate the buying screen. If everything goes according to plan this might be the most addictive beat-'em-up to date, especially in its two-player mode. I'll wait and see.

Metal Masters is scheduled for release in January on ST and Amiga. Meanwhile, ST owners still anxiously awaiting the release of Infogrames' 3D *Tetris*-style puzzle game, *Welltris* (you'd forgotten all about it), need not wait much longer. You'll see *Welltris* come onto the shelves over the next week.

BOXES OF JOY

Why buy one game when you can buy three for the price of two? While everyone else is frantically bringing out Christmas compilations, Infogrames is working on a different idea. It is taking three of its top titles, sticking them in a box binder and selling them for £49.99. The first of these boxed games comprises *Tintin on the Moon, Murders in Space* and *The Light Corridor. Tintin* may not be a hot game, but *Murders in Space* and *The Light Corridor* are two of the best we've ever seen from Infogrames.

The first pack of three games is set to appear in January on ST, Amiga and PC (the PC version will be £5 more expensive). If it sells well more such packs are going to be available through the year. ■



They better be... there's only the vacuum of space on the other side!
The station is designed to receive 4 more modules. They should be docked by 2003.

Tania BORONOVA

Some airlocks seem to be permanently locked.

• Murders in Space – just one game out of a pack of three from Infogrames.

TOP 10 SIXTEEN-BIT GAMES

1	1	Teenage Mutant Hero Turtles	Mirrorsoft	ST AG PC
2	NE	Powermonger	Electronic Arts	AG
3	3	Robocop 2	Ocean	ST AG PC
4	5	F-19 Stealth Fighter	Micropose	ST AG PC
5	7	Kick Off 2	Anco	ST AG
6	4	Lotus Turbo Challenge	Gremlin	ST AG
7	2	Golden Axe	Virgin	ST AG
8	1	Hollywood Collection	Ocean	ST AG PC
9	9	M1 Tank Platoon	MicroProse	ST AG PC
10	6	Indy 500	Electronic Arts	AG PC

For the week ending 8th December

ST – Atari ST Ag – Commodore Amiga PC – IBM PC or compatible

Chart compiled by Gallup. © European Leisure Software Publishers Association.

PLAYING TIPS

OPERATION STEALTH

US GOLD

The stealthy way to make a bomb

This week I'm continuing the tips on *Operation Stealth*, courtesy of *ST FORMAT* reader, Matthew Wilkinson from Kent.

Press the lock combination button until the line under the digits comes off the screen. Turn it off, then remove the little box. Press the lock combination one more time and this reveals the secret envelope that you need contact your agent.

You run after the man in the white coat and follow him on a jet ski. Make sure you avoid the sharks. The second part is tough because you have to avoid Otto's men. Go to the sea weed screen and examine all seaweed until you find an elastic band, then go right until you reach the last screen and examine the palm tree. Operate it and go towards the entrance, operating the opening.

You find yourself in a cage about to be eaten by goldfish. Use the pen on the lock and then use the watch on the right and left walls. Go to the grill and wait until the rope tightens then operate the grill. Another five levels of mazes appear for you to get through.

Operate the soldier and then examine his shoes, some laces appear – take them. So he can't give you away take the towel and use it on the soldier.

Go left and out through the exit. Head for the door on the left and examine the second drawer up on the left, then operate it. Take the laces out and use them on John. Examine the bottom right drawer, operate it and then examine it again. Take the stamp and then leave.

Go to the exit on the right and go through the door on the left. Examine the clothes and take the note containing your orders. Use the glass on the fountain and then operate the untidy desk. Examine the garbage and take the lifeboat then leave the room. Go towards the exit at the top right. The officer asks you for a glass of water and after this you go back through the exit. Go forward again and exit the room on the left. Take the first door on the right. Use the full glass at the right on the officer, and when his back is turned take the stamp. Leave the room quickly if you can. Go back to the room with the fountain and take the inkpad which is next to the mess. Use the stamp on the inkpad then use the stamp on the orders sheet.

Operate the cigarette case, examine the blue cigarette and operate it. Use the cigarette on the glass. A finger print appears after all the excitement. Leave the room and go right and up to the door that refuses to open. Use the finger print on the finger print ID and the door opens. Us the stamped orders on the letter box and go towards the laser doors.

Use the electric cable on the socket then operate the razor. Put the razor in the waste paper basket and go through to the right exit. Find the computer so you know where it is and wait for the razor to say "explode, one, two, three" and straightaway use the options menu. Use the elastic band on the bomb. After the second screen operate the lifeboat, and you've completed Operation Stealth.

THE BATTLE OF THE BLAST-'EM-UPS

This week, it's not just one game review but four. With so many shoot-'em-ups littering the shelves at this time of year it's hard to make up your mind which one you should be spending your cash on so let *Express* do the hard work for you...

DRAGON BREED

Activision • £24.99

The arcade game went down a storm because it had some of the most exciting visuals of all time but transfering games like this to a home micro is always difficult. The playing character in this one is a well-armed man who rides around on the back of an invincible Chinese dragon. Using careful moves of the joystick you can control the dragon in such a way as to encourage him to curl his tail up over the top of the man and thus protect him. You can't ride round like this for long before the tail uncurls but if you're careful you can use the dragon's tail to wipe out most of the bad guys without getting hurt.

The action scrolls left constantly with aliens coming at you from all sides. In true R-Type fashion you get streams of aliens coming at you all at once and then go through a period of rest with nothing in sight. At the end of the level you confront a giant guardian who must be blasted over and over again before he drops dead.

The main problem with *Dragon Breed* is that the levels are just too short. You hardly have time to blast the aliens in front of you before you bump into the end-of-level guardian.

NARCO POLICE

Dinamic • £24.99

Dinamic IS renowned for producing heaps of shoot-'em-ups. Unfortunately, most of them have been pretty mediocre. This one marks a big change in Dinamic's usual style with startlingly realistic visuals and some stunning effects. The objective is to race through secret tunnels in a bid to reach the centre of the island. As you're delving through the tunnels all sorts of territorial-army types regularly appear from behind rocks and drop out from the ceiling. Your job is simple – fire at the lot of them and draw blood at every turn.

What makes the game so appealing is the quality graphics. Just look at the screenshots to see the detail in the sprites. When you fire your sub-machine gun the tunnel lights up orange from the reflections of your gun fire and if you aim correctly the bad guys are tossed backwards with blood spurting out of their stomachs.

The game is played with three teams which each enter the island from different tunnels. At any point in the game you can switch to another team and take up the action from there.

Unfortunately, in the ST version the animation tends to be very jerky with few frames used in the movement of the central character. The Amiga version is better though it's still a little jerky. If you're looking for a shoot-'em-up that's emminently realistic and frighteningly blood-thirsty, this has got to be the one to go for.

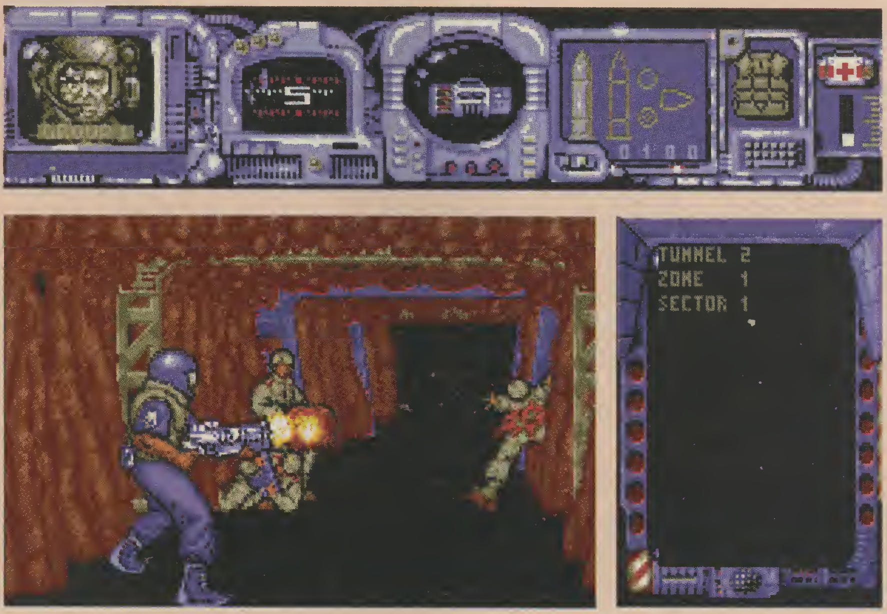
ATOMIC ROBOKID

Activision • £24.99

Fed up of shoot-'em-ups played with souped-up space ships or ultra-futuristic racing cars then how about playing with a dustbin instead? *Atomic Robokid* is a metal dustbin who initially starts the game with no special abilities whatsoever. However, the moment the screen opens you can jump up to collect a special flying icon and henceforth Robokid can fly through the levels.

This game adheres rigidly to the common and successful shoot-'em-up formula. The levels scrolling horizontally forwards and the range of bad guys confronting you are enormous. Heaps of special bonuses can be collected simply by directing Robokid over the top of them, but in the midst of some intense action you're sure to miss out on just the one you need. These bonuses improve your weaponry no end – giving you missiles that bounce round the screen until they find a target, laser bolts and blasts of fire. You need these to defeat the mid- and end-of-level guardians such as a giant loo brush which spins towards you, gradually pushing you back through the levels.

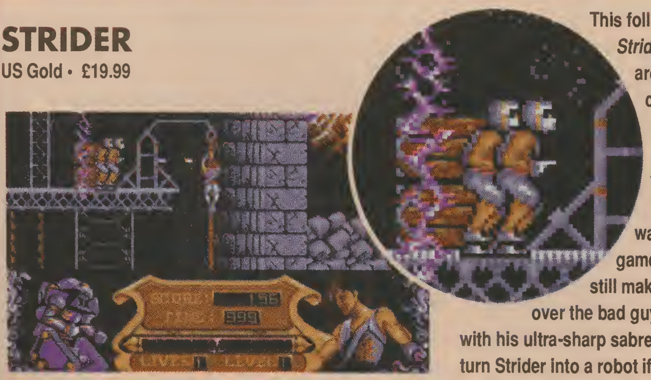
This is a hugely addictive game. The scrolling is slow and when there's a lot happening on the screen at once the movement of the enemy sprites slows down still further. However, this doesn't prevent this from being easily the best shoot-'em-up in a long time.



• The latest shoot-'em-up from Dinamic gives you real humans to blast

STRIDER

US Gold • £19.99



• Strider 2 *features a novel exploration element guaranteed to keep you searching through the levels for hours.*

This follow-up to the Capcom hit, *Strider*, has itself spawned an arcade game. Capcom is currently looking at releasing *Strider 2* around the middle of 1991 but if you can't wait until then, try this instead.

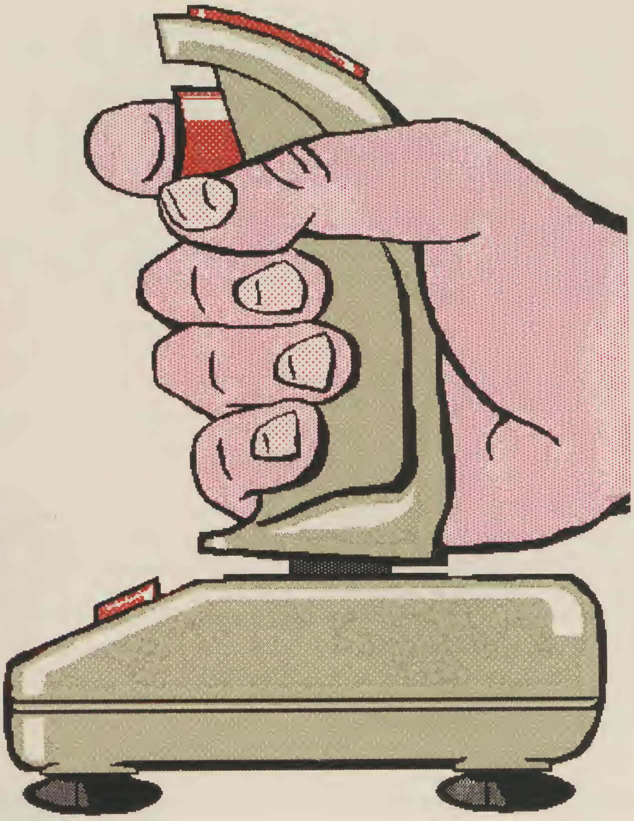
Strider 2 has come on a long way from the original *Strider* game. As in the first game you can still make your acrobatic hero leap over the bad guys and slash everyone in half with his ultra-sharp sabre. However, you can now also turn Strider into a robot if you collect enough bonus pods through the game. When Strider is in his robot form he can fire mercilessly at the enemies heading in his direction without sustaining much damage himself. This is particularly handy when you need to defeat the end-of-level guardians.

Strider 2 has a novel exploration element which isn't found in the other shoot-'em-ups. The idea is to locate the exit to the next level but there are all sorts of routes you can take. By exploring as much of the level as possible you can pick up more and more bonus pods and the more in your possession, the longer you can stay as a robot at the end of the level.

The graphics in this version are detailed and the animation is smooth but *Strider 2* still isn't as addictive as its parent. Nevertheless, this is much more of a game of skill than the others, depending as it does on the exploration element and manipulation of Strider's acrobatic movements.

HELP IS AT HAND

PART 2



Struggling with that game granny got you for Christmas – don't despair – Mark Higham's here with another batch of top tips and cheats.

LICENCE TO KILL – DOMARK

OK, you've followed our last advice and got all the way to the end of stage three, now what happens? Here's how to complete the last two stages of the game.

STAGE FOUR. Only head underwater when James is about to be hit by bullets and when he gets a harpoon off of a diver. Do this by firing when the bad guy is on top of you. Go under the divers to collect the harpoon, dodge the boats and collect the drugs. When you have a harpoon, line James' right arm up with the right hand float on the plane and fire. You find you are now pulled along by the plane. Push forward and dodge the boats and rocks. When you catch up with the plane, the stage comes to an end.

STAGE FIVE. Push forward to get up to full speed with your tanker. Tap your stick or key backwards so you get near the bottom end of the screen while still travelling at top speed. Move to the left of the road but don't hit the side. When the tanker comes on let it get just in front of you and then move right and up to get past it. Don't hit the side of the road. When you're past the tanker, hit its cab with the back of your tanker until it blows up. There are five tankers and the fifth one belongs to Sanchez. He may fire stinger missiles at you – it's tricky but make sure you dodge them.

OUTRUN – US GOLD

Type STARION on the title screen and a menu pops up giving you a list of keys you can hit for special effects. Hit T to increase your time limit.

DRAGONS BREATH – PALACE

At the start of the game seek out two towns or villages which are at war and attack the village with the lower population (preferably 800-1000 people). You conquer it with ease. Now go back to the castle and put an egg onto boil at approximately 3/4 heat. It hatches at about the same time as the computer's egg hatches (provided you're not playing against a human opponent). At the end of the month take the money that is offered as a reward because your finances become very tight later in the game.

Once you have successfully conquered a village you should set the tax rate to approximately 1/4 for a population of 500-1000 people, 1/2 for a population of 1000-1500 people and 3/4 for a population of 1500-

SHADOW OF THE BEAST II – PSYGNOSIS

You've picked up the ale and you're half way through *Shadow of the Beast 2*. Now what do you do? Well you've come to the right place to find out.

Leave the hut and return to the starting point of the game. Head right, making sure to watch for the pygmies and head diagonally up to the left on the stepping-stones. Be certain to watch out for the monster which fires jelly when you reach the bridge and then proceed to collect the bonus. Kill the monster to get the axe and head diagonally up to the right for another bonus. Go back down the way you came and head left until you find a covered hole. Jump onto the cover (taking care not to land on the platform above) and you should drop through.

Head left, dodging the crystals which pop up from the water, and collect all the bonuses you can find along the way. Chase the goblin to the left until you reach the drawbridge. Switch to the axe and jump to shoot at the character winding up the bridge, but remember the time limit on the axis and keep throwing those axes at your foe. Switch back to the mace to obliterate the other goblin and then smash through the door.

Go left and up, then hit the switch to turn off the spikes. Go left and crouch to hit the switch on the right. Go right, down, left and down and then kill the goblins you meet. Go right, collect the key then go left and under the cage. Oh dear, you've been captured and it's off to prison.

To escape from prison, offer the ale to the goblin and use the mace to break the cage door. Go up to the top and head left. Kill the goblins to collect the ring then go down and kill the sleeping guard to collect the key. Go back and release the remaining prisoner in the cell above yours. Go back down to recollect your mace and then go up and head to the right. Use the remaining key to open the door then go right and watch out for spikes.

Leave the caves and return to the surface. Go right, down, then right and kill the giant head. Go right, then up the rope and right, looking out for any bats that might be hanging about. Go right and across a bridge. Get the giant lizard-man to follow you back across the bridge so that he falls through. Go right, jumping over the hole which the lizard-man has just made and continue to head right until you reach the old man. Offer the old man a ring and parchment and collect the weapon which he makes. This is the one to use from now on. Go left and drop through the hole in the bridge. Head right, watching out for bats, then go down and collect the bonus. Go right onto the rope, then right again onto the ledge to collect the horn. Go back left and down the rope and the quickly jump out to the acid and head right. When you reach the snail, ask him about KARAMOON and answer Yes to both its questions.

Head off back to the surface and once there, go right, looking out for giant hurling axes. Go right, over the cliff edge and then right, killing the giant toads. Watch out for the giant serpeant in its nest.

Now walk to the sea edge and use the horn to call the sea beast. Climb onto its back and then go right and enter the tower. Go right, down the stairs and then up the adjacent stairs to collect the bonus. Go down, then right and it's time for the big battle. If you can defeat Zelek the beast mage then you've completed the adventure and you've won the game. If you can't, you're dead and you've had it. ■

2000 people. Once the population has grown beyond 2000 people you can set the tax rate to its maximum without prompting an uprising from the people. As the population increases the upraising rate starts to fall but this can be accelerated using a spell to increase the population. Once the population has reached between 3000 and 4000 people, a new village will be formed with the same tax rate as the city which spawned it. Make sure you reset the tax rate, following the guidelines listed above. You can leave a city on maximum tax rate for just three-six months (dependant on the population) before the people either rebel or destroy the city. The computer always sets the tax rate of its village to a maximum level, eventually destroying the village and thus depleting its income.

There are some ingredients which you should concentrate your cash on when you visit the traders. These ingredients comprise TIUS, CHURL, CALOTIS, OREGANSE, ACRUS (used to increase the population), RASGON, IGELE, ULIN, PFOSS, HALOROS and MAGIAN (used to increase dragon abilities).

The most useful spells you are likely to need are:

PEOPLE SPELLS (to increase population and reduce the rate of an uprising)

2	TIUS	NORMAL
3	CHURL	MIX & HEAT
2	PFOSS	NORMAL & HEAT
or		
2	CALOTIS	NORMAL & HEAT
3	OREGANSE	NORMAL & HEAT
2	AGRUS	MIX & HEAT
or		
2	TIUS	NORMAL
4	CHURL	MIX & HEAT

DRAGON SPELLS (used to increase your Dragon's abilities)

Eyesight

2	RASGON	GRIND & HEAT
2	IGELE	MIX & HEAT

This causes a slight loss of speed.

Strength and health

2	RASGON	GRIND & HEAT
2	ULIN	NORMAL & CONDENSE (or 2 IRIN CUT & CONDENSE)
1	PFOSS	NORMAL & HEAT

Wisdom

2	RASGON	GRIND & HEAT
2	HALOROS	CUT
2	PFOSS	NORMAL & HEAT

Speed

2	RASGON	GRIND & HEAT
1	MAGIAN	NORMAL & HEAT

Take care with some of these mixtures because an explosion can result if you add too much. Experiment with other potions because these can give you all sorts of advantages in the game.

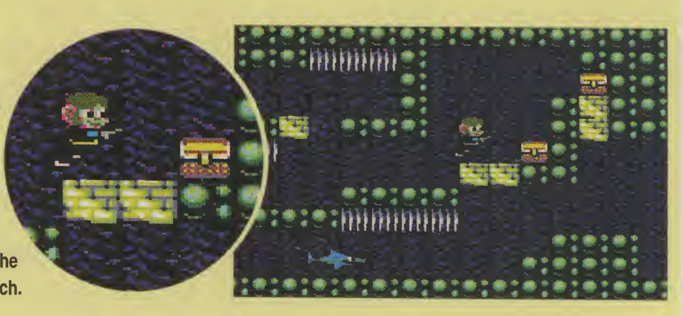
At the beginning of each month check your accounts book to see if any of your dragons have located any part of the talisman. If they have, place your strongest dragon at this location. After between three and six months have elapsed you will have wiped out all the dragons at the location, leaving you free to find the talisman in peace and so claim your prize in Dwarf Mountain.

Many thanks to Trevor Harrison from Doncaster for this enormously useful guide to Palace's mystic adventure. ■

ALEX KIDD IN MIRACLE WORLD – SEGA

JANKEN CASTLE

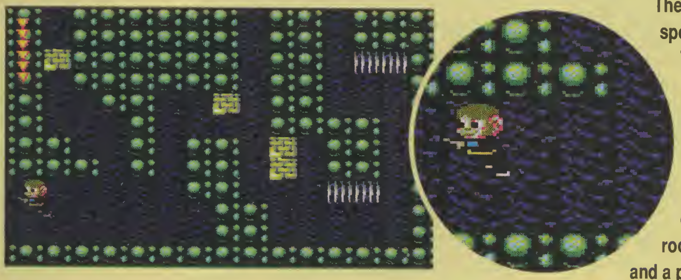
After Radactian you meet Chokkina – Rock and the rock again. His head flies off so be careful to avoid it. Punch the head three times. Parplin (After the kingdom of Nibana) – Rock and then scissors. When his head flies off go to the left of the screen and just punch.



THE MAGIC CASTLE

When you're on the drawbridge get the two stars. Jump down and go all the way down to the right. Go down the first ladder, jump over the flame and then go left and punch out the gold boxes. You can use the bracelet at this point.

Keep going left, jump between the open bricks and try to get the star and the money (crawling may be helpful). Move right, shoot out all the gold bricks and then pass the next ladder you see. Enter the room containing heaps of gold boxes and two star boxes. Get the money in the boxes and take the ladder heading down.



Go along the top of the room, making your way down towards the right into the gas chamber. Pass the spikes, moving right to the frog room. Take the frog out, keep going right into the room with two question boxes (one of them holds a bracelet), scorpion and flame. Take the ladder located in the top right portion of this room.

You enter a U shaped building. Break the gold boxes – this enables you to make your way up. When you get to the top head left.

The next room has bricks, plants and water. Take the ladder in the left side of the room and go up. At the top of this ladder go left into a room with a flame and only one star box. This box contains an Alex.

Take a ladder all the way up and go left. You enter a room with four ladders, three flames and a question box. Take the ladder at the top left of the room. You enter another gas room with a pink fish box at the left. Punch it rapidly two or three times and then run quickly to the right side of the room.

Go up the ladder. You enter a room with three frogs. Take them out and then exit at the top right of this room.

The next room has hanging spikes. Cross over the bottom portion, jump over the floor that opens when you cross it. Punch the gold box at the end of the floor and drop down to another room containing one fish box and two spikes. Punch the fish box twice, take out the scorpion and go towards the right.

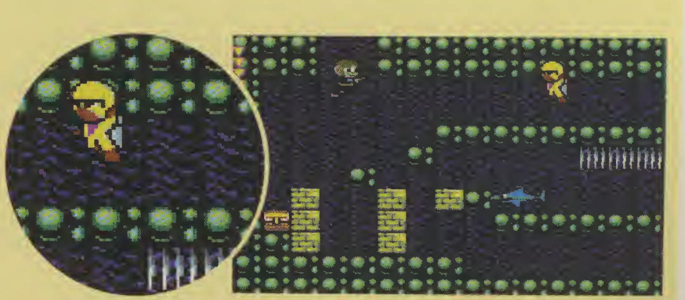
The following room is a good spot to use the Cane of Flight. This room has a question package. Watch out, the floor drops out. Use the cane to float to the top of the room, using the ladder in the right portion of the screen. You enter a room with scorpions, frogs and a pink fish box. Punch the box two or three times and go to the right into the next room.

In this room there is a frog and moving flames. Hit the pause button and use your question package (teleport power). Jump past the frog, go down the ladder second closest to the the right hand wall. Jump down, watching for scorpions and flames, then go right. You are now faced by Janken the Great. You could try paper and then paper again to defeat him.

When you win he gets mad and tosses balls at you. You need to punch him in the forehead twice to continue. Never get behind Janken. If you do you have to reset the game. Once you hit him a present appears at his feet. Take it and exit at the top left of the screen.

CRAGG LAKE

Run over the boxes on the floor in the following sequence: sun, waves, moon, star, sun, moon, waves, fish, star and fish. Grab the crown and read the message. That's it!



CONSOLE ZONE

The games scrutinised by Richard Frederick this week are a gorey bloodbath for the Sega Megadrive and a fishy affair for the Nintendo Gameboy.

YOUR ZONE

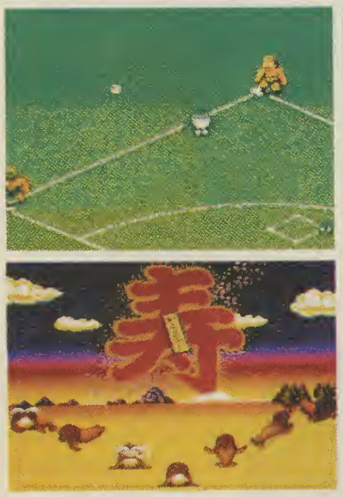
We're looking for the greatest video game players in the country. Send us your top scores on the latest games releases.

Have you found any hidden features in your new games? What do you want from the next generation of console hardware and software? We want your views on any subject connected with console gaming.

We're also after your tasty tips, crafty cheats and hot hints. So if you want to see your name in print write now to:

The Console Zone, *New Computer Express*, Future Publishing, 30 Monmouth Street, Bath, Avon BA1 2BW – or fax 0225 446019.

NEC PC ENGINE



• **Kickball:** ***the strangest sports team of all.***

Kick Ball is a crazy futuristic ball game from NCS in Japan costing 6200 yen (£24).Players have the choice of controlling a strange bunch of sports-people ranging from a muscle-man complete with moustache to a toad-like alien with a wide grin.

The game even includes a potato with legs! That's Japanese software for you – off the wall but very entertaining.

NINTENDO ES

Have you had enough of ninja swordfights on the Planet Zark? Wondering why it's always up to you to defend the universe from giant radioactive amoebas? Now you have the chance to reclaim your brain with *Puzznic*, a new arcade puzzle game from Taito.

Puzznic seems easy at first. You must move and match geometric shapes to wipe out all the puzzle pieces. The trouble is that you've got to match the shapes in just the right order or you won't blast one puzzle and pass to the next.

You pick up bonus points for matching multiples. If you're really fast you can beat the clock and start a chain reaction.

And that's not all. After you've completed 160 puzzles you get *Gravnic*, a bonus game that lets you play against gravity. It's no brain no gain with Taito's *Puzznic*.

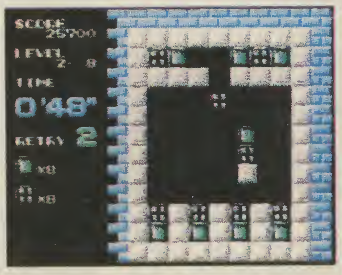
SEGA MEGADRIVE

Electronics Arts has released the Megadrive version of *Sword of Sodan*. This Innerprise title was a highly successful Amiga game featuring large arcade-style graphics.

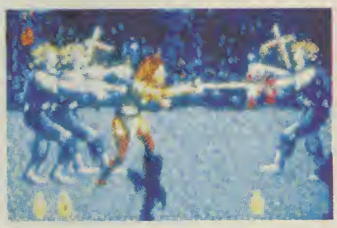
Playing Shardan or Brodan, sibling wards of the legendary warrior Sodan, you must wield your sword to free the southern kingdoms from the grip of the evil wizard Zoras. Your path is lined with traps, blocked by towering warriors and steaming with lava. Magic potions can be found which give extra lives, flaming swords, shields and other mystical powers, but victory is dependent on split-second timing and quick wits.

Sword of Sodan features plenty of hand-to-hand combat including a variety of ways to attack the enemy, an option to play the heroine Shardan or the hero Brodan, and buckets of gushing blood. Seven different levels provide for differing challenges, including the Bridge of Spikes, the Zombie Graveyard, the streets of the southern kingdoms and Zoras' looming tower high above Castle Cragganmore.

Sword of Sodan costs £39.99 and is available in the shops now.



• ***Sick of ninjas? Try some puzzles in*** **Puzznic.**



• **Sword of Sodan:** ***buckets of blood and hundreds of ways to slay your enemies.***

NINTENDO GAMEBOY

Fish Dude from Sofel in Santa Monica, California, is the latest title to be released on Nintendo's handheld wonder machine.

An entertaining and challenging game, *Fish Dude* entices you to jump in and wet your feet as you navigate through the depths of the ocean and keep your head above water in three levels. The more you explore the sea, the more obstacles you'll have to avoid.

The object of this underwater adventure is to gobble-up schools of smaller fish, so Fish Dude can grow and fight off larger fish who want to make him their dinner. It's not all smooth sailing either. In addition to his aquatic arch-rivals, your saltwater friend has to contend with a sea full of any characters, including a pestering pelican, delirious diver and floating feline.

Fish Dude promises to turn the tide for players of all ages. ■

PLAYING TIPS

NINTENDO ENTERTAINMENT SYSTEM
Reach the end of *Metal Gear* with this passcode:
T1111 11611 11111 11111 11116

SEGA MASTER SYSTEM
Select any *Shinobi* level by simultaneously holding down [Down] and [Button 2] on the title screen.

SEGA MEGADRIVE
Obtain infinite *Revenge of Shinobi* shurikens by selecting 00 shurikens on the option screen. After 15 seconds the number of shurikens will magically transform into an icon of infinity.

NEC PC ENGINE
Change the in-game *Moto Roader* music by pausing the race the simultaneously holding down [Select] and [Button I] or [Button II].

NINTENDO GAMEBOY
Here's some *Asmik World* passwords:
STAGE 1: ZAHNBELA
STAGE 7: SCARAB
STAGE 8: AXOLOTL
STAGE 9: BLUTEN
STAGE 10: CHIMERA
STAGE 15: REMORA
STAGE 16: PANGOLIN
STAGE 17: DEWLAP
STAGE 23: MINORCA
STAGE 24: ELYTRON
STAGE 25: GILA
STAGE 32: HYDRA
STAGE 33: IBEX

● Do you have any hints for *Teenage Mutant Ninja Turtles, Double Dragon, Batman, Nemesis, Qix, Golf* or *Tennis*? If you do send them along now to the address above.

THIS WEEK'S HIGH CONSOLE SCORES – CAN YOU DO ANY BETTER?

LYNX			*Moonwalker*	1,020,360	Nicholas Wells
Blue Lightning	240,950	David Will Henderson	*Rainbow Islands*	1,760,980	Nicholas Wells
California Games (BMX)	798	Nicholas Wells	*Super Shinobi*	5,890,200	Wai-Yin Man
California Games (Footbag)	100,743	Nicholas Wells	*Thunderforce III*	3,564,100	Nicholas Wells
California Games (Surfin')	32,025	Nicholas Wells			
California Games (Halfpipe)	8,100	Nicholas Wells	GAMEBOY		
			Batman	424,060	Peter Worth
MEGADRIVE			*Super Mario Land*	474,170	Jay Lee
Eswat	277,900	Alex Taylor	*Tetris*	396,064	Peter Worth
Forgotten Worlds	1,843,000	Wai-Yin Man			
Ghouls and Ghosts	750,000	Tim Walker	NINTENDO ENTERTAINMENT SYSTEM		
Golden Axe	414.5	Alex Taylor	*Super Mario Bros.*	510,660	Chris Heefer

THE ATARI ABC

Now, there's a PC-AT compatible that not only solves problems like other AT compatibles, it also solves the one problem that its predecessors have created ... affordability.

Silica Systems are pleased to present the new Atari ABC. The ABC is a 286 AT compatible that runs at over 5 times the performance of the IBM XT. This is achieved by combining the power and speed of a 16-bit 286 processor, with Atari Corp's development experience and engineering capabilities, which use the very latest in design technology. However, the Atari ABC's are available at 'XT prices' and many XT owners will wonder why they paid more, but got less!

The ABC is a reliable, high performance computer, built to exceptionally rigorous standards. It is well designed, to a state of the art specification, maintaining maximum expansion capability for the future. This includes up to 4Mb of RAM and 3 AT expansion slots. Plus, unusually for a PC at this price, the ABC has the ability to install two or three extra drives, with the cabling already inside the CPU.

The ABC has a host of impressive features, all built-in as standard, encouraging simple installation and ease of use. In addition, the ABC's small footprint and quiet operating, mean that you will notice it less on your desk than other PC's. Except, of course, when you begin to take advantage of its AT power.

At its remarkably low price point, the ABC is ideally suited for home, office and educational use and will take full advantage of the vast range of PC compatible software. And, with 12 months FREE on-site maintenance (8 hour response), you can rest assured that your ABC will be fully supported.

The ABC is the latest addition to a comprehensive range of both 286 (8Mhz or 12Mhz) and 386 (16Mhz and 20Mhz) PC's, from the Business Systems Division of Atari Corp. Atari's PC range offers an unsurpassed combination of reliability, compatibility and expandability, with unique features like Atari's 44Mb removable hard disk on their PC4. Return the coupon NOW for further details of the complete range of PC products from Atari's Business Systems Division.

ABC TURBO
AVAILABLE: JUNE 90

To put the ABC even further ahead of the competition, we have introduced a special 'Turbo' version, which includes a super fast RLL hard disk controller to increase the data transfer rate from 150KBytes/s to 800KBytes/s, with a performance index of 4.801. Plus! to provide exceptional graphics with an outstanding colour resolution of up to 1024×768, we have included a Super VGA graphics adaptor and a 14″ VGA colour monitor (which also supports 1024×768 resolution), all for an additional price of only £300. Check the ABC Turbo against the competition, at only £1299 (+VAT) with 30Mb hard disk, Super VGA colour graphics capabilities, plus 12 months on-site maintenance, it offers unbeatable value.

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- Mouse controller port built-in (9-pin serial)

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- Keyboard - has 2 position height adjusters

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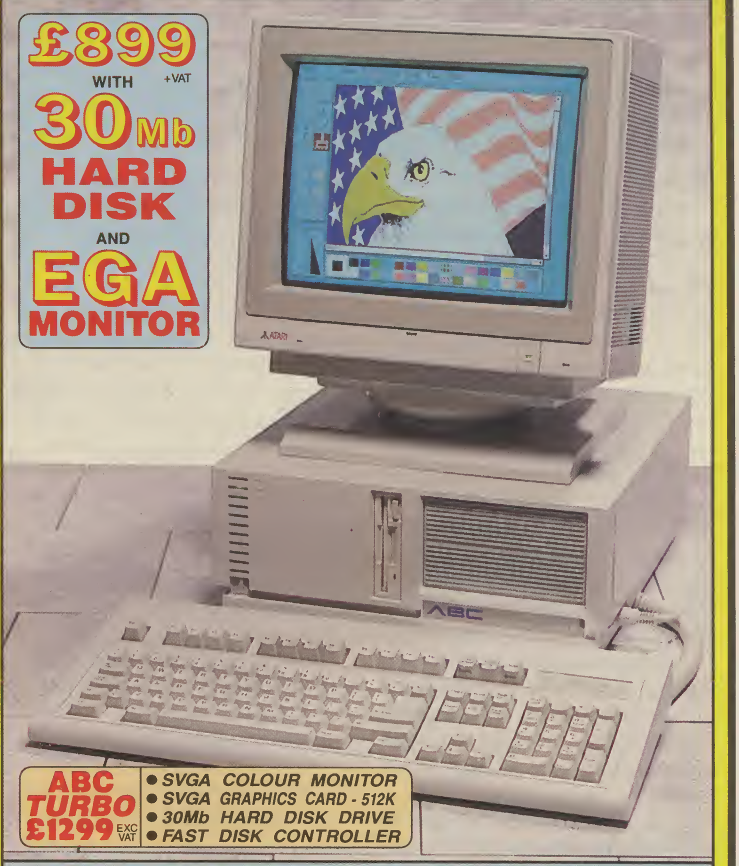

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ATARI

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FREE CATALOGUES: Will be mailed to you with offers and software/peripheral details.
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Before you decide when to buy your new Atari ABC, we suggest you think very carefully about WHERE you buy it. Consider what it will be like a few months after buying your ABC, when you may require additional peripherals or software, or help and advice with your new purchase. And, will the company you buy from contact you with details of new ABC products? At Silica Systems, we ensure that you will have nothing to worry about. Silica Systems is a new division of Silica Shop, the UK's leading Atari specialists. This new division has been established to provide a service to the more serious home user, as well as to business and education purchasers. Silica have been established for over 12 years, and have an annual turnover of £13 million. With our unrivalled experience and expertise, we can now claim to meet our customers requirements with an understanding which is second to none. But don't just take our word for it. Complete and return the coupon now, for our latest Free literature and begin to experience the "Silica Systems Service".

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To: Silica Systems Ltd, Dept **NCE 0191** 28, 1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX

PLEASE SEND INFORMATION ON ATARI PC's

Mr/Mrs/Ms: .... Initials: .... Surname: ....

Address: ....

....

.... Postcode: ....

Tel (Home): .... Tel (Work): ....

Company Name: ....

Which computer(s), if any, do you own? ....

E&OE - Advertised prices and specifications may change - please return the coupon for the latest information.

TECH TIPS

Does your PC keep packing up? Is your Amiga less than friendly? Would your ST try the patience of a saint? Write to Keith Pomfret's Tech Tips and we'll soon see you right. Send your sorry stories to Tech Tips, Beauford Place, 30 Monmouth Street, Bath BA1 2BW.

■ HELP! All Formats

I would greatly appreciate your help with the following: can you tell me where the All Formats Show is held? Is that the only location? Are there any near me? Is there anything similar that I could go to?

I am on a very limited budget and I have to equip myself with an IBM compatible PC by Feb 1991. This is for a course with the Open University. Unfortunately, because I am unemployed I cannot get credit and trying to save enough on Income Support is proving impossible.

My only alternative is to build my own PC. Judging by your article in Circuit City (*Express* 107) the dearest item, the motherboard, is about £70 – which puts everything within my limited range.

Although I could not buy everything in one go, I could buy as much as possible on each visit, until I had everything required. This, of course, would only leave assembly. I have some experience in this area, but I am also not too proud to ask for help when necessary. Thank you for any help you may be able to give me.

Tim Woods, Devonport, Plymouth.

Our list of forthcoming events doesn't hold out much hope for the south west corner of the country. Nothing in Plymouth – and the nearest regular event is the All Formats in London.

All Formats shows happen about once every six weeks. It may be a tad expensive to hop on to the bus, but it could still work out cheaper than buying elsewhere. The show is held at the Royal Horticultural Halls in Greycoat Street, Victoria, and is announced with a fanfare of advertising in the computer press.

■ HELP! Sharks

I have been given an Amiga *Dungeon Master* disk and box but, as you have probably guessed, no instructions. Can you or any readers help me. You're welcome to publish my address or phone number.

The disk number is 233181M and the number on the box is CAID-DUN7. Is re-formatting the only answer?

A H Foster, Bassett, Southampton.

The only problem with queries like yours is that people who appear to have lost, mislaid or never been provided with the instructions for a piece of software are often pirates who are trying to find a simple way of getting the paperwork for programs that they've stolen.

I'm not suggesting for one minute that you're anything other than a fine upstanding citizen but I'm afraid that you'll have to carry the weight of those who set a bad example on your shoulders. The best thing to do if you are genuine and have come by an original program (not a copy) by honest means is to approach the software house or distributor. Show them proof that you have the prog. Throw yourself on their mercy and if they're benevolent chaps they could help you out.

■ HELP! Serial crop

I wondered whether you might be able to help. I bought a Commodore 0422 tractor printer second-hand for only £25. Although it is old, it seems to be in good working order. But will it work on my Amiga 500?

If yes, could you tell me who can supply an appropriate lead or, with your vast technical knowledge, describe the pin outs so I can make up a lead of my own. The big problem is it has no manual, and all I know about it is that the man in the second hand shop thinks it used to belong to a man who had a C64. So I'm not sure whether it's serial or parallel.

I hope you can help, as it seemed a very good buy – or have I bought a pig in a poke!!

Perry Tatman, Gosport, Hants.

Neither I nor anyone at Commodore has ever heard of the printer that you mention. If it is a 4*** series printer (which seems the most likely) it is serial.

The good news is that your A500 has wodges of printer drivers. If you have Workbench 1.3, you'll find umpty zillion of them on the Extras disk. Try installing the serial printer driver and connecting it to the computer with a bespoke cable from RSD Connections on 0992 584205.

■ HELP! Radio Kaos

I am writing to your magazine to tell you about the project that I am undertaking with my Amiga – and to ask, through your pages, for help in completing it.

I have been linking my modem to a walkie-talkie and transmitting data to my friend who lives about a mile away. He downloads it via the second walkie-talkie and modem and the data is saved to disk using normal comms software. The problems are very slow speeds (typically 300 Baud), software incompatibility and interference. If anyone with experience in this

■ HELP! VGA Amiga and Null Modem

I use an A500, with a portable colour television. Not very desirable I'm sure you'll agree, but a colour Amiga monitor is presently out of financial reach.

However, I do have access to an IBM VGA monitor. The lead is fixed at the back of the monitor and has a 15 pin male D connector on the other end.

The obvious question then, is there any way in which I can connect the monitor to the A500.

John Smith, Cricklewood, London

A trip to the *PC Plus* dungeon deep in the bowels of Future Towers brought a schematic of the 15-pin VGA connection for your monitor. Another sortie to the *Amiga Format* roof garden provided the video pin out for the A500.

The Amiga connections are as follows:

1 External Clock
2 External Clock enable
3 Red **4** Green **5** Blue
6 Digital intensity **7** Digital Blue
8 Digital Green **9** Digital Red
10 Composite Sync
11 Horizontal Sync
12 Vertical Sync
13 Return for 2
14 Zero Detect
15 Clock Out
16-20 Ground
21 -12v **22** +12v **23** +5v

And the VGA monitor connections

1 Red **2** Green **3** Blue
4 Ground **5** Test
6-11 Ground
12 not connected
13 Horizontal Sync
14 Vertical Sync
15 Not connected

Having only just entered the computer field, I find *Express* a very worthwhile 70p and have been reading it since taking up this fascinating hobby.

My query refers to the Circuit City article you published in *Express*.97 concerning a null modem cable.

Your article is very easy to follow and I understand the circuit, but most serial ports contain at least 9 pins. What about the others?

The reason for my query, is that I have some 9 core cable and it seems a waste to just snip off the other six cores. Can they be connected up and, if so, are they just straight connections (apart from the 2, 3 and 7 you mention) or are there any other cross overs necessary? Any assistance you can give would be much appreciated.

V M Bevan, Chadderton, Oldham

The null modem I suggested then is enough to do most jobs so there didn't seem to be any point in elaborating. However, since you've asked, the complete pin connections for a full sized serial port (25D) are as follows:

1 1
2...3
3 2
4 5
5 4
6 8 20
7 7
8 6 20

The pins are:
1 Gnd
2 Transmit
3 Receive
4 RTS
5 CTS
6 DSR
7 Common
8 DCD
20 DTR

The necessary pins in the 9-pin AT style serial port are:

1 DCD
2 Receive
3 Transmit
5 Common
6 DSR
7 RTS
8 CTS
9 RI

If you don't feel that the above is enough info to work from contact one of the companies that specialise in leads to make you one. If you'd rather spend £7.50 or so buying it ready made Simpson Electronics is on 0332 760353 and RSD Connections is on 0992 584205.

field would care to contact me, I would be very grateful for any information.
Duncan Webster, Oakham, Rutland

The ideal way to send data from computer to computer via the airwaves is RTTY or Radio Teletype to give it its Sunday name. In order to take advantage of RTTY which uses packet radio as the medium for data transmission, you'll have to become a Radio Amateur and spend a few hundred quid of your hard earned on the necessary. You'll need a license to practice and that involves a couple of exams.

Another alternative (and an even more expensive one) is connecting to the radio cellphone network using either an acoustic coupler or the dedicated Vodata CDLC modem (£500 plus)

If cash is the most important of your considerations and upgrading your system to one of the above is beyond your means, you could try sending the data in a form that is heavily checksummed. You haven't said which computer you are using but try using comms software that supports X, Y, or Z modem formats. This adds a checksum to each packet of data that's sent and thus you might be able to crank up the speed a little. The checksum causes the same packet to be sent again if it is corrupt. This assumes of course that your modem's capable of greater speed.

Another constraint on the transmission of data in the way that you're trying is the quality of the transceivers you're using. It may be that the signal quality isn't capable of anything better.

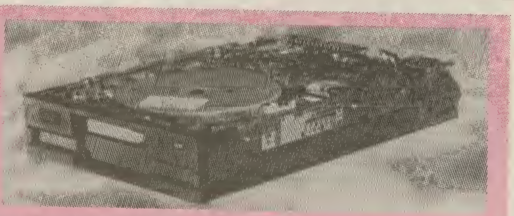
■ HELP! Drivin' mad

I am a hard pressed teacher co-ordinating I.T on a meagre budget at a primary school. We recently purchased an Amiga "Class of the 90's," with money raised by our parents and friends. All those members of staff who dare use it think it is a marvellous machine (compared with our BBC's) but are somewhat put off by what they consider to be too much disk swapping. It is obvious I need to obtain a second drive.

I have been given an IBM 3.5-inch disk drive and would like to know if it is at all possible to use this with our Amiga; and if so, what work would be involved to link it up.

The serial number of the drive is: DFL 713A05A. The max rating is 12v and 0.25 A.

The connection to the drive is via a PCB edge connection with 20 contacts on the top and 20 below, there is small gap between contacts 3 and 4. Hoping you can be of help.
J H Wright, Washington, Tyne & Wear.



• This is the MF356C – a 4Mb 3.5-inch FDD from Mitsubishi.

The drive that you have is indeed capable of doing the business on the Amiga with a suitable cable. Both Commodore and IBM warn against the wisdom of make and mend interface solutions and I tend to agree with them. The drive you have will require a special cable to enable the data to travel between it and the Amiga. If you're likely to add peripherals to the machine, it's probably a good idea to run it from a separate power supply. Contact Simpson Electronics for parts and advice on all Amiga fettling and the bits required to do it – call 0332 760353 between 11am and 8pm.

■ HELP! Manual dexterity

I own a Spectrum 128k, the original Sinclair One, Interface One and a Microdrive, all of which I have bought second-hand (including over £50 of full price games as well as a pile of budget games), for £98. I list my questions:

1. The 'Manual' I got with the computer is completely useless, it's not even designed for the 128! As a result I do not know how to use the improved sound, (I used to own one with a rubber keyboard). I know the command, PLAY, (I discovered it by printing out the character set, I also discovered SPECTRUM, which when entered in 128K BASIC turns the computer into 48K BASIC), but do not know how to use it. Could you tell me where to get a decent manual and how much it would cost?

2. Regarding the microdrive, the lead connecting it to Interface One, doesn't work properly. When a file is loaded the drive is switched on but not off again, so it keeps on whirring round to its heart's content – until I chop the power. I have tested the wire in the lead with the buzzer and there are no breaks. It has got to be the lead because I have borrowed another lead off a friend and everything works fine. What can I do to repair it? If I can't repair it where can I get one from?

3. Because of the high cost of Microdrive cartridges, £4 each, I was wondering whether I could hook up a disk drive to Interface One, via a suitable lead, to save me spending £4 to store 90K, or do I have to Plus D.

You may have asked, why spend £100 on a disk drive and not on cartridges? Well, when I have enough money I plan to 'upgrade' to an Amiga and because I plan to use it seriously, as well as for playing games, I really do need two drives.

4. Where can you get the numeric keypad that slips into the 'telephone' socket on the front right hand side of the computer?

I sincerely hope that you can help me in some way.
Dominic Morris, Malvern, Worcs

1. Amstrad has the rights to the Sinclair Spectrum nowadays so it is from them that you should get the requisite book. Try dropping Amstrad a line at Kings Road, Brentwood, Essex. They should be able to supply the book or maybe tell you of a local source of supply

2, 3 and 4 all have the same answer. If anyone can help you it's EEC Ltd. Try giving them a ring on 0753 888866.

■ HELP! Tip off

Your tips section in my opinion, in comparison to almost all other computer magazines, is completely crap. In fact, it is so bad, I think I will just say: "Get someone else to do your job, and I don't think I will even bother finishing this letter."
Anon.

Doesn't it make you wonder where all the money poured into education goes? Certainly not in the direction of someone who gives up after a couple of lines.

■ HOPE! Greatly loathed

I am inspired to write to you by your reply to Marion Ox in *Express* 108. First, your statement "I am loathed". Now please, Keith, get that idea out of you head; we all like you – truly! It's just that some of us don't much care for your somewhat original use of the English language.

Now, to the matter in hand. My Citizen 120D will not print labels because they come off their backing in their journey round the platen, and get stuck in the works. Is there a remedy?
John South, Creekmoor, Poole.

I'm obviously 'loathed' by one of our subs, who took a perfectly sensible sentence and made me the hated man of the office through the addition of a couple of letters.

I ran some stickies through the 120D attached to an elderly CPC at home and it failed to replicate your problem. Perhaps your brand of stickies aren't sticky enough. It shouldn't be too difficult to get samples of other labels to find out if they'll work with your Citizen.

■ HELP! Rhymin' Simon

There are many word processors with thesauruses, dictionaries and other utilities to make authorship easier, but there is one area where the compilers of these useful programs have been deficient. Many times in the course of speech writing, I have the need for alliteration or rhyme. I haven't found a word processor that can do either of these, which is a pity. It could help me improve the flow of the sermons I write and preach on a regular basis.

If you have heard of anything I could use to do either or both jobs please tell me. My computer is a PCW 8512 and my word processor is currently CPM Protext.
Simon Rackham, Sheffield

To my knowledge, there is nothing that will do the job you require on any machine, never mind the PCW.

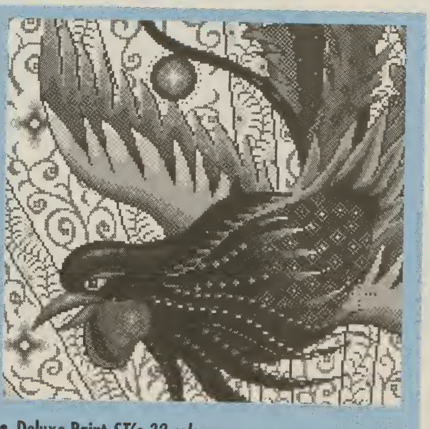
The rhyming problem wouldn't be too difficult but might involve a lot of work. The *Longman Rhyming Dictionary* (ISBN 0-582-55655-4) could be quite simply converted into a text file (with the publisher's permission or it would be illegal) and you could use the search option in *Protext* to locate group(s) of rhyming words. The twin files function in *Protext* means you could have your work open in one and the rhymer in the other and swap between them when necessary. An 'Allitrotron' program would probably be a little bit beyond the PCW unless anyone out there knows different. ■

■ HELP! Showing your true colours

I own an Atari STE Computer and I am wondering why art programs, such as *Deluxe Paint ST, Canvas, Hyperpaint II* etc in their STE modes, only offer 16 colours on the screen – when STEs are supposedly capable of showing 32.

The availability of 4096 colours is worthless, when so few colours are possible (except in dodgy HBL modes). How can the STE complete with the Amiga with 32 colours as standard? Salvation seems to lie in STE games.
S G B, Ellesmere Port, South Wirral.

You seem to have answered your own question. Currently, the only programs that generally address the enhanced hardware of the STE are games. Although the machine has a vastly increased palette there doesn't look to be much hope for STE specific progs that utilise the machine's hardware fully at the serious end of the spectrum.



• Deluxe Paint ST's 32 colours.

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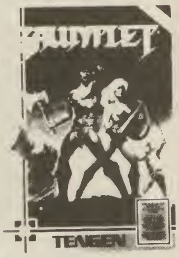

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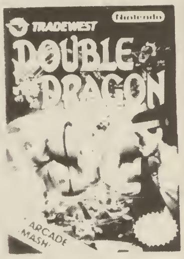

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MATCHING COLOURS

Colour has become vital in computing, but creating colour images has either meant drawing them or digitising from video. Now a Sharp scanner offers colour on your desk for £550; Stuart Anderton tried it out...

Computers have come a long way from the block graphics of the ZX81 and the original PC. High-end machines are now offering millions of colours on the screen, and even more down-to-earth Amigas and PCs can handle dozens of shades in high resolution. Actually using that colour for images has caused problems, however. If you had a artistic bent you could draw your own, but those of us with more mechanical skills were limited to video digitising; and that involved lashing out on a camera if you wanted any control over the image. And the quality of these images was often less than brilliant.

But now, as they say on *Tomorrow's World*, a new development from Japan will change all that. The Sharp JX-100 is a hand scanner which can produce colour images. It operates through the serial port, so it can work with any machine if you write the software for it; at the moment programs exist for the PC, Amiga and Mac.

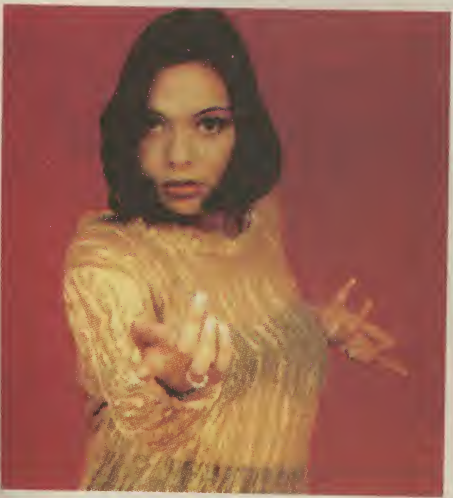
The JX-100 looks rather different to your average hand scanner. It is around 30cm long, 15cm wide and 3cm thick. Most of the top of the machine is glass and the casing forms a sealed chamber within which a scanning head moved up and down under its own power. To use the scanner you place it on top of the artwork and type the appropriate commands from the computer. The scan head then moves over the artwork three times; once for red, once for green and once for blue. The software then combines the three scans into a full colour image.

The software supplied with the PC and Mac does not allow any editing; you will need separate software to do that. You can use the images straight – the Computer Critter and the mono pic are unretouched – but you get better results with some adjustment. The large picture of Betty Boo was edited with Electronic Arts' *Studio-8*, while the smaller one was treated in Adobe *Photoshop*.

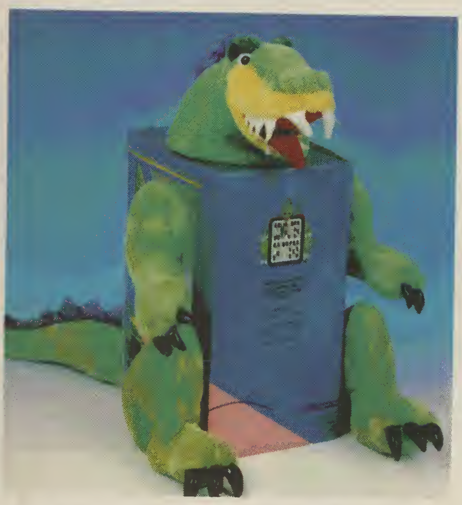
The images print fine on a colour dot-matrix or inkjet printer, but you do lose a lot of quality in the process. The best use of the Sharp will be to produce screen images, and that it does superbly well. The colours are very accurate for such a low cost machine, and its 200 dots per inch resolution is plenty for a screen which can only show around 70dpi. The Sharp can scan in up to 262,144 colours, which can then be reduced to an appropriate number for screen graphics. It also works as a very passable mono scanner.

The JX-100 is the most interesting and, well, fun, piece of hardware to land in the *Express* office for some time. Hours have been wasted scanning in members of staff's pictures and swapping the heads around, all in glorious colour. A great machine at a great price.■

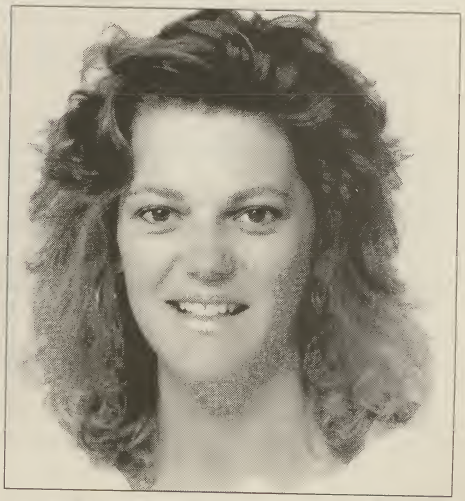
The JX-100 costs £545 with PC software from Sharp on 061-205 2333. Macintosh software and Windows-based PC software is from P&P on 0706 217744. Amiga software is made by ASDG Inc on +608 273 6585.



• *This is Betty in her 16-bit glory, preserving almost all the colour information from the scanner. The resolution is the same but 65,536 colours can be displayed. The trouble with this sort of image is that it is difficult to output accurately.*



• *This 256-colour 200dpi image was scanned from a highly colour saturated photograph to test the scanners colour accuracy. In case you're wondering its a Computer Critter from Datrontech on 0252 313155.*



• *As well as colour work the scanner works well in straight monochrome, offering 64 shades of grey at up to 200 dots per inch. And the gorgeous pouting girlie? None other than our art editor Amanda.*

GET BACK TO YOUR ROUTES

With the help of his trusty Amiga and a new route planner called GB Route, Keith Pomfret finds a new way of getting back up North.

GB Route is a suite of route planning software for the Amiga that will allow you to plan business trip, holiday or excursion from the keyboard. There have been route planners available for the PC and ST for some time now and these have varied in price and specification from about £70 for *Autoroute* on the ST to over £1,500 for the full screaming *Pan European Navigator* on the PC. *GB Route* slides underneath them with a £39.95 price tag that make it an affordable piece of software.

GB Route comes from Complex Computers which is a small software house specialising in Amiga products and hails from Lancashire.

Mike Stanworth and his software writers have produced *GB Route* as a route planner for the Amiga that has a comprehensive collection of A roads, arterial routes and motorways. There aren't any of the tiny B and unclassified roads there, but as one of the project's aims was a program that could live on the Amiga A500, there wasn't enough memory for more. You make a journey decision based on location, destination and stopping points, add times and the Amiga does the rest. You can input average speeds for both A roads and motorways and the results are quite impressive.

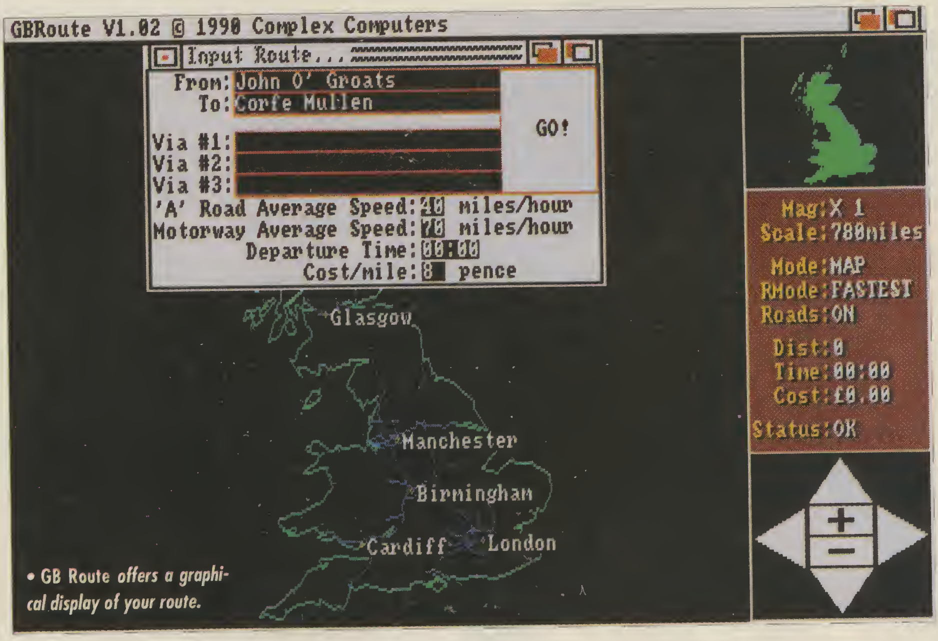
GB Route can calculate the quickest and shortest distances between your chosen places and displays a map. There are increase and decrease icons to click on and these bring a zoom feature into play. Map detail is switchable and you can show places or roads or both.

Stopping places on the way can be programmed in too. There's room for three transient destinations as well as the eventual finish.

Although there's not a feature for avoiding known black-spots and hold ups, these can be avoided by the conveniently putting in transient points that force the route away from trouble. It is not as elegant as a dedicated feature to do that, but at £1,500 cheaper than one competitor, you can't complain.

With the whole program loaded into memory, calculating your route is very quick. There are no routines to load from disk and even the most complicated long distance run with stops was calculated in a few seconds. When it came to planning a long and complicated route that took a few days and traced some 3,200 miles, *GB Route* was a bit fiddly. I had to break the journey into discrete sections and then calculate each of the sections separately.

There's a facility where you can look at the route as a table and the route and table can be sent to the printer. The complicated journey was fiddly to put together, but in some ways was more legible when it was printed out in tabulated form. The list of roads on your route gives you an indication of a route you can take. Delays and localised roadworks will always defeat even the best planned journey and even with the road watch summaries on the radio, some contraflows will spring up unexpectedly. However, the print out of your chosen route should offer you a better chance of getting it right and organising a diversion than by using string on a map or an opisometer.



```
GBRoute V1.02 © 1990 Complex Computers
Input Route...
  From: John O' Groats
    To: Corfe Mullen
Via #1:
Via #2:
Via #3:
'A' Road Average Speed: 40 miles/hour
Motorway Average Speed: 70 miles/hour
        Departure Time: 00:00
             Cost/mile: 8  pence

Mag:X 1
Scale:780miles
Mode:MAP
RMode:FASTEST
Roads:ON
Dist:0
Time:00:00
Cost:£0.00
Status:OK
```

• GB Route offers a graphical display of your route.

MACHINES AND MANUALS

GB route will run happily on a 512K Amiga and the software will autoboot on a cold machine. If the machine's already running it can be started from the Workbench. On a bare A500, it's a bit of a squeeze running directly from the Workbench and although it's possible, it's probably better to let it boot itself. However, any thoughts of multi-tasking on a 512K Amiga with *GB Route* running can be quickly consigned to the fiction shelf of the local library.

The program is supplied on a single 3.5-inch disk in a plastic folder. The disk isn't copy protected so it's possible to make a back up for safety. Before you do this though, you should check current legal situation which makes this a crime without permission of the copyright holder. *GB Route* is user friendly enough to get by with minimal documentation. I would normally whinge about serious software with little or no documentation, but in this instance the intuitive interface of the program renders a manual redundant.

After booting, *GB Route* relies on your intuition. The review sample arrived before any paperwork, but this didn't prove a problem and any one who is Amiga literate could persuade *GB Route* to do its stuff after a couple of minutes of clicking on icons.

REAL LIFE

A run from Bath to Dover followed by a mad dash to the north west put *GB Route* through its paces.

The route to Dover passed without problem and with a 70 seat coach full of skiers returning from an early 'two planks down a mountain' ski holiday, I was glad of a print out to guide me north to Sheffield before turning west over the Pennines to Manchester then on up to the Lake District. The route that *GB Route* offered didn't try to drag the big diesel over any narrow passes or under any low bridges and the only detour was one caused by a contraflow (*Isn't it always – Ed*). After a pleasant night overlooking Windermere, the gentle run back down the M6, M5 and M4 was covered within 10 minutes of the program's guess.

OPINION

I like serious software that's fun to use. If I had to categorise *GB Route* or for that matter, any of the route planning packages, I think that they would come out as much in the entertainment category as the applications. They're fun to play with and can serve a useful purpose. *GB Route* doesn't know every back street in the UK and is restricted to major roads which isn't a weakness, since it keeps you on the major roads instead of careering you up the first alley that will save you a minute off the journey. For £39.95, it is brilliant value.■

GB Route *is available from Complex Computers on 0706 224531.*

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The Commodore A500 Batman Pack must surely rank as one of the most popular computer packs ever! The pack features the **Commodore Amiga 500 computer** with **mouse controller** and **TV modulator**, plus four top software titles. The software includes: **'Batman The Movie'** - Rid Gotham City of the cunning joker, in Ocean's top selling title based on the blockbuster Batman film; **New Zealand Story** - high quality conversion of the leading arcade game; **Interceptor** - Dogfight with two F-16's in this leading flight simulator; **Deluxe Paint II** - top quality Amiga graphics package which set the standard for others to follow. Return the coupon for further details.

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Which computer(s), if any, do you own? .... A2000 ☐

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In fact enter it ATonce. Yes, if you own an ST or Amiga and you fancy a free 286 PC then here's your chance!!

ATonce is a hardware PC emulator that offers the power of an Intel 80286 processor to run PC software on the ST or Amiga.

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So what do you have to do to get your hands on one of these wonderful £200 emulators kindly supplied by leading mail order and retail company Silica?
Just answer the following six questions!

1. What company made the Russian aircraft many believed to be an exact replica of Concorde?
a) Lenin Aviation Authority
b) Concordski
c) Tupolev
d) Aeroflot
e) MiG

2. On what show did top impressionist Harry Enfield make his first TV appearance?
a) Spitting Image
b) New Faces
c) Opportunity Knocks
d) The Tube
e) Saturday Night Live

3. What was the name of the final replicant to be killed in Blade Runner?
a) Pris
b) Leon
c) Roy
d) Ken
e) Ridley

4. Which film could be euphemistically called a 'homage' to Shakespeare's Romeo and Juliet?
a) Nosferatu
b) Night of the Living Dead
c) Texas Chainsaw Massacre
d) Emmanuelle
e) West Side Story

5. Which famous black recording artiste has been sampled more than any other?
a) Stevie Wonder
b) Michael Jackson
c) James Brown
d) Chuck E
e) Little Richard

6. What's the MS-DOS command for copying files ?
a) Swap
b) Pip
c) Copy
d) Transfer
e) Pirate

So there you have it. All you have to do now is cut out the form and sellotape it to the back of an envelope or a postcard, because if you were in my position you'd just pull out the entries which you don't have to rip open from the inside of a letter wouldn't you? Just address the envelope "I want to be a Cyborg", and send it to *New Computer Express*, 30 Monmouth St, Bath.

• Yes! A trip on Concorde could be yours . . . if you can find a travel agent running such a competition. Meanwhile this picture merely serves to draw you into question 1 above.

Name..
Address...
....
The answers are 1) 2) 3) 4) 5) 6)
Supplementary question in the event of a tie-breaker.
Robots will never take over the Earth because...
......................(no more than 5 post-human predictions please) I own an : ST ☐ Amiga ☐

EVERYONE'S A WINNER

(Well 17 of you actually)

So, which lucky chaps and chapesses are going to light up their post-crimbo gloomies by continuing to read the rest of this box-out to find out whether they've won a super soaraway SAM Coupé or loads of amazing Monty Python artefacts? You are? Fine.

First – the SAM Coupé. For getting the answers right and for completing the tie breaker, "The Delors proposal for a common European currency is unworkable because....", with the immortal pan-Euro consciousness expanding, "it's French", the lucky winner is:

EDWARD GRAHAM OF LUTTERWORTH, LEICS

The spanking SAM is on its way to you even now – as the very rush of excitement tingles through every last fibre in your body. Everyone here wishes we could be you for at least a few nanoseconds of ecstatic joy. But we can't, so we won't, so we'll carry on.

Six Monty Python videos. We'll ditch the ceremony and just cut in with "...and the lucky dudes are...":

G.N YATES OF CHORLEY, LANCS; JIM THORNTON OF DONCASTER,YORKS; P.J GREENWOOD OF BLACKBURN, LANCS; J MICHAEL, ALSO OF DONCASTER, YORKS; LYNNE JEFFERIES OF BRISTOL; DAVID ASHBY OF PADDOCK WOOD, KENT

But what about the 10 runners up who'll be receiving a whole host of badges and posters? Well wait no longer: CRAIG HART OF DONCASTER YET AGAIN; A.J. NORTHCOTT OF OXFORD; CHRIS FROST OF SCOTTERTHORPE, LINCS; JAMES COOK OF INVERKEITHING, FIFE; MARK KRASON OF LONDON; DAVID 'THE LARCH' MARTIN OF LONDON TOO; PAUL WILSON OF FAREHAM, HANTS; KEVIN PATTON-SMITH OF SCARNING, NORFOLK; JEFF LINCOLN OF LONDON FOR THE THIRD TIME and ANDREW MORE OF FORESTDALE, CROYDON your goodies will be despatched as soon as Virgin sends a Jumbo round your way. Phew! See ya soon...

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